

ACHIEVING CLOSURE AT FERNALD

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ABSTRACT

When Fluor Fernald took over the management of the Fernald Environmental Management Project in 1992, the estimated closure date of the site was more than 25 years into the future. Fluor Fernald, in conjunction with DOE-Fernald, introduced the Accelerated Cleanup Plan, which was designed to substantially shorten that schedule and save taxpayers more than \$3 billion.

The management of Fluor Fernald believes there are three fundamental concerns that must be addressed by any contractor hoping to achieve closure of a site within the DOE complex. They are relationship management, resource management and contract management.

Relationship management refers to the interaction between the site and local residents, regulators, union leadership, the workforce at large, the media, and any other interested stakeholder groups. Resource management is of course related to the effective administration of the site knowledge base and the skills of the workforce, the attraction and retention of qualified and competent technical personnel, and the best recognition and use of appropriate new technologies. Perhaps most importantly, resource management must also include a plan for survival in a flat-funding environment. Lastly, creative and disciplined contract management will be essential to effecting the closure of any DOE site. Fluor Fernald, together with DOE-Fernald, is breaking new ground in the closure arena, and "business as usual" has become a thing of the past.

How Fluor Fernald has managed its work at the site over the last eight years, and how it will manage the new site closure contract in the future, will be an integral part of achieving successful closure at Fernald.

BACKGROUND

The Fernald Environmental Management Project is a 1,050-acre U.S. Department of Energy (DOE) facility in southwestern Ohio, operated by Fluor Fernald, Inc. It is located just north of Fernald, Ohio, approximately 20 miles northwest of Cincinnati, Ohio. Construction of the site began in 1951. The facility operated from 1953 until 1989, producing uranium metal fuel elements, target cores and other uranium products for use in weapons, production reactors and other DOE programs.

For remediation purposes, Fernald is divided into five operable units (or OUs) based on their locations within the site or the potential for use of similar technologies in final cleanup. These OUs are:

- OU1 Waste Pits 1-6, a burn pit and a clearwell.
- OU2 Other waste units, including the sanitary landfill, lime sludge ponds, fly ash piles and the area known as the South Field. Fernald's On-Site Disposal Facility (OSDF) is a part of OU2.
- OU3 The former production area (approximately 136 acres), including all former processing buildings and equipment, scrap metal piles and the fire training area.
- OU4 Silos 1-4; Silos 1 and 2 (the "K-65" silos) contain radium-bearing wastes, Silos 3 contains dried uranium-bearing wastes, and Silo 4 is empty and has never been used.
- OU5 Environmental media, including groundwater, surface water, soil, sediments, air, vegetation and wildlife. Natural resource restoration and cultural resource management are also considered to be part of this operable unit.

Additionally, millions of pounds of low level waste, low level mixed waste and nuclear materials were generated during the production years. Characterization, sampling, storage, staging, shipment of this "legacy" inventory to disposal or interim storage off site, or transfer to on-site disposal in the OSDF, are all responsibilities of the Waste Generator Services Division.

INTRODUCTION

In 1992, when Fluor took over as prime contractor for the Fernald Environmental Management Project, the estimated closure date of the site was 2017, approximately 25 years into the future. Today, complete closure is anticipated by 2010, with the very real possibility of substantial closure by 2008 or earlier, and at a cost of \$3 billion less than originally estimated. What happened at Fernald? How did Fluor Fernald manage to reduce risks, reduce cost and reduce cleanup time without compromising worker safety and public involvement? Most importantly, what lessons can be learned by other contractor organizations from the Fernald experience?

The management of Fluor Fernald believes there are three fundamental concerns that must be addressed by any contractor hoping to achieve site closure within the DOE complex. They are relationship management, resource management and contract management.

RELATIONSHIP MANAGEMENT

The early years of the Fluor contract at Fernald were not without stumbling blocks. Fluor Fernald began its work at the site intent on completing the Records of Decision, providing the best possible contractor performance, and by the 1995 timeframe, implementing the Accelerated Cleanup Plan, Fluor Fernald's effort to shorten remediation of the site to 10 years. However, management found themselves in a dilemma that had nothing to do with performance excellence or technical competence. Relationships with the site unions, local residents and other public stakeholders, and the regulators were all less than desirable. Unfortunately, both the Department

of Energy and Fluor Fernald were still at times operating under a “decide and defend” method of communication rather than as a part of a collaborative decision-making process.

Between 1993 and 1996, things began to change. With the advent of Accelerated Cleanup Plan implementation, the basic organization of Fluor Fernald was revamped to focus on site cleanup rather than on business as usual. Both Fluor and DOE-Fernald moved decisively from the traditional “decide and defend” posture to a “inform and involve” attitude that permeated all relationships at the site. Fluor and DOE insisted on continuous, real-time involvement with the regulators, through tools as simple as a weekly conference call update on all site projects and as complicated as full-blown remedial design package reviews. This “no surprises” form of communication meant that the regulators were on board from beginning to end, with good news or bad. Management also began to develop and maintain inclusive relationships with the site unions, involving their leadership up front in everything from special events planning to changes in site-wide procedures. Union representatives were also invited to sit on the Central Safety Committee and to participate in off-site Leadership Team meetings and activities. Internal communications vehicles were retooled to make sure that Fernald employees were kept abreast of breaking site news ranging from changes in benefits to road closures. Again, no surprises for the work force.

Above all, DOE and Fluor began to exercise a real partnership with members of the public, using every possible means to keep them informed and involved. In 1997, the site instituted monthly briefings, open to all interested stakeholders, covering the latest activities for each site project and providing a 30 to 60 day “look-ahead” of forecasted activities. Over time, these project briefings began to alternate on a monthly basis with “issue-specific” briefings on subjects or projects specifically suggested by members of the public. DOE and Fluor senior and project level management also began to make themselves available to attend meetings of local environmental organizations, such as the Fernald Residents for Environment, Safety and Health (or FRESH), and advisory groups, such as the Fernald Citizens Advisory Board (CAB) and the Fernald Community Reuse Organization (CRO), to answer detailed questions about project progress, funding, special issues, etc.

Another tool that has been successfully employed by Fluor Fernald is the Envoy Program, actually initiated in 1994. The Envoy Program is Fernald’s one-on-one communication tool for promoting exchange of information about the site between Fernald personnel and local community groups, such as school boards, local township governments, local business groups and elected officials. Other communication vehicles include the Education Outreach Program, Partnership in Education, the Fernald Speakers Bureau and other individual methods of outreach that give Fernald workers a chance to address questions and share information about Fernald.

Fluor Fernald also has a continuing commitment to working with the local and national media, as well as the trade press, to keep them up to speed with accurate and timely information. The Fernald site has had many experiences with the media, some positive, some very negative. But regardless of the tenor of the press the Fernald site receives, the commitment to full cooperation and disclosure remains.

RESOURCE MANAGEMENT

Obviously, relationship management is a huge challenge for any DOE site, but it is by no means the only one. Resource management is a difficult task under the best of government contracting circumstances. In fact, resource management in a closure environment seems at the outset to be a completely paradoxical statement. How does any contractor in the soon-to-be-burgeoning DOE site closure market manage to adequately staff and schedule potentially huge projects from inception to completion? Just how do you go from thousands of personnel down to potentially a handful in 10 years or less, while still ensuring safety, outstanding performance and acceptable levels of risk?

One of the most important things Fluor has done to manage its resources is to retain ready access to the site's knowledge base. As stated in earlier background material, the Fernald Environmental Management Project is a former uranium processing facility that operated from 1952 until the summer of 1989 when production was suspended and the site was placed on cold standby. Production never resumed, although the site was not formally closed to production until June of 1991. In December of 1992, Fluor Fernald (then the Fernald Environmental Restoration Management Corporation) became the first-ever environmental restoration management contractor, and for the first time in its history, the Fernald site was entirely devoted to environmental cleanup.

Why is this history relevant to resource management? Many of the long-time workers at Fernald from the production era were in an ideal position to retire in the late 80s and early 90s, and did so. Along with those individuals went a tremendous amount of institutional and process knowledge. This problem is not exclusive to Fernald, nor strictly to production facilities in the DOE complex. It applies to weapons dismantlement, weapons testing, reactor operation and many other aspects of both DOE and Department of Defense facilities. Written production records can only tell you so much, and record keeping itself, for that matter, has changed a great deal in the last 45 years.

How do you retain the site knowledge base of the past? Fluor Fernald has instituted a Process Knowledge Review Team, made up of former production era personnel from the site, all who have many years of experience in various aspects of the production "line." These individuals are on call and available to answer questions or assist in research. They have been especially helpful in the areas of waste characterization and management, because their knowledge of the processes represented by any given identifying material code goes far beyond a description in a database. Their intimate knowledge of former processes and work practices is invaluable to present day employees involved in waste storage, movement and disposal.

Fluor Fernald has also made a concerted effort to look to its present employees as knowledge management assets, by involving, promoting and rewarding outstanding members of the current workforce. This effort also involves looking to the future. Fluor Fernald encourages flexible movement of personnel across the workforce from project to project and task to task, thereby expanding experience, creating depth of talent, and retaining employee interest and excitement.

Any contractor who is focused on closure also must meet the resource management challenge of capturing and keeping the needed technical competency. To address this challenge, Fluor Fernald first of all had to plan accurately to determine the project's needs. There is simply no substitute for asking the right questions up front, and knowing to the very best of your ability what your needs are. Then, you must assess your current workforce accurately to make the best possible use of the already available competency. When every minute and every dollar count, no company can afford to waste resources ignoring or under-utilizing its currently available assets.

No matter how well you plan your work and assess your capabilities, there will be gaps. Fluor Fernald has reaped the benefits of both the Fluor Corporate talent pool and the resources of the other Fernald teaming organizations, using the special expertise of each member organization to fill project needs. Closure contractors must be prepared to recruit aggressively within and beyond their parent organizations to ensure that they find the most qualified personnel available, because by definition, time is of the essence.

Most importantly, each individual working at the site, whether salaried or wage, Fluor or teaming subcontractor, long-time Fernald employee or short-term special resource person, belongs to the Fernald workforce. Teaming organization representatives are invited to use their skills and abilities in the strongest manner possible, and to take advantage of the flexibility of movement within the overall organization to best benefit the site and themselves. This absence of favoritism or labeling creates a positive environment where each employee can concentrate on the real job at hand --- site cleanup.

Management of resources is not limited only to the effective administration of people and their expertise; it also involves a concerted effort to seek out and stay abreast of the latest technological developments. For Fluor Fernald, this has had several important components. First of all, the right people have to be dedicated to the effort. Both "right" and "dedicated" are operative words here. A dedicated group of people ensures a contractor's ability to keep up with the ever changing technological environment. Having the right group of people to monitor developing technologies involves deeper issues. In the recent past across the DOE complex, the tendency has been to scan for new available technologies, meet with vendors, choose a couple of likely candidates and then seek funding for demonstration, testing and if you were lucky, eventual deployment. DOE and the contracting community, as well as members of Congress, have already recognized that this procedure puts the proverbial cart before the horse. To reach closure, contractors must look to their own project managers, find out what their unanswered technical needs are, and then go out to the technology vendor community with a call for technologies to meet those needs. DOE can no longer fund technologies unless they fill a specific current or post-closure related need.

Fluor Fernald has recently developed an Integrated Site Technology Team (ISTT) designed to involve technology development professionals, site project managers and outside experts to identify, then seek out, needed technologies. Fluor Fernald has even gone one step further and has sought involvement from our local stakeholders. Technology Programs management is now routinely updating both FRESH and the Fernald CAB on the progress of the ISTT and is actively incorporating their feedback on the technology identification process as well as on the specific technologies ultimately chosen for deployment.

Public involvement in technology development, and also in cleanup implementation in general, is especially important from the standpoint of long-term stewardship. Long-term stewardship, or LTS as it is commonly referred to, may seem at the outset to be the DOE complex trend-of-the-month, but it is actually an extremely important component of driving toward closure at DOE sites across the nation. Even more importantly, it is an integral component of maintaining safe, protective end states into the future. DOE-Fernald and Fluor Fernald have been successful, not only at involving the public in post-closure technology decisions, but also in assisting stakeholders in developing their own vision for the future of the site. This "Future of Fernald" vision is consistent with all cleanup decisions and approved remedies, and incorporates diverse, broad-based input on potential public use of and access to the site after cleanup is complete.

Resource management for closure can also be assured of having to address one last, infinitely important item --- funding. How do you safely and adequately close a site in today's funding environment? Once upon a time, you could only be sure of two things --- death and taxes. To that list the DOE complex can now add "flat funding." Flat funding is the single biggest challenge that any closure contractor faces today. Fluor Fernald has begun to meet that challenge head-on by instituting a Closure Planning Team whose job is to focus on development and maintenance of an accurate, aggressive baseline, and then challenge that baseline at every opportunity. This involves more than just the streamlining of individual project operations. It also involves planning and constantly re-evaluating an integrated approach to implementation of site cleanup as whole. Project sequencing, performance improvements and consolidation of activities are all strategies for cutting costs and accelerating progress. If the Fernald site, or any other DOE site, is to successfully achieve closure under current financial restraints, it is crucial that a dedicated and knowledgeable team be in place to continually question how business is currently being done and how to do it better.

DOE-Fernald and Fluor Fernald also believe that public involvement is an essential component of survival in a flat funding environment. Local residents, regulators and other stakeholders need to know the fiscal challenges faced by the sites in their neighborhoods or within their purview. We are all taxpayers, and ultimately, we all need to have a say in how our money is spent. The only thing harder to deal with than flat funding is decreasing funding. Individual members of the public can speak out in support of stable funding for their local site in a way that no federal agency or contractor representative can come close to, and their voices can often be heard clearly at the highest levels of government. However, they cannot speak with authority and clarity unless there is open sharing of information, not in an attempt to influence them in one way or another, but simply in a straightforward manner that tells them what can and cannot be accomplished within a given budget scenario.

CONTRACT MANAGEMENT

This is the year 2001. Fluor Fernald is proud to have been chosen in November 2000 as the contractor to lead Fernald to closure. This \$2.4 billion contract took effect December 1, 2000, and has a target completion date of December 31, 2010. However, the maximum benefit of this cost-plus-incentive-fee contract will be realized if closure is accomplished in the 2006-2008

timeframe. That leads us to contract management, the last, but definitely not the least important closure concern.

The new contract creates tremendous opportunities for Fluor Fernald, but also holds us accountable for our performance, in that cost increases and schedule delays will result in reduced fee amount earned. It defines the scope of work and what constitutes completion, restoration and closure of the site in accordance with existing agreements and schedules. It also provides for significant penalties for failure to achieve environmental, safety and health requirements. Additionally, the project management system now in place will track our performance based on tangible, quantifiable progress toward site closure, and will ensure that client assessments of our performance are based on clear, objective criteria. Successful administration and execution of this contract, or of any other similar contract, using all the tools developed through relationship and resource management efforts, is crucial to reaching closure.

A VERY REAL PATH TO CLOSURE

There is an end in sight. Fernald's projects are all well underway. There are challenges that remain and Fluor Fernald has taken action to meet these challenges. The retrieval and remediation of the materials stored in the so-called "K-65 silos" remains challenging from the twin standpoints of design and execution, and is a critical path item on the road to closure. Another critical path activity involves removal of all remaining nuclear product materials no later than June 2002, which presents very specific repackaging and transportation challenges. Fluor Fernald has already modified its organizational structure to reflect the importance of these projects and to elevate them to the point where they are sure to receive the funding and attention required to see them through to completion.

Throughout the drive towards closure, Fluor Fernald also remains committed to the challenge of preparing the site workforce for "life after Fernald." Tools for accomplishing this task currently include a college tuition reimbursement program, an on-location Commercial Driver's License training program, the Fluor Daniel Craft Certification Program, the Craft Apprenticeship Program, and two fully staffed Career Development Centers that feature workshops on everything from improving study skills to writing an effective resume. The site has also hosted very successful and well attended education and career fairs and continues to work with union leadership to identify even better ways for employees to strengthen their qualifications and enhance their marketability.

CONCLUSION

At closure, 904 acres of the Fernald site will be devoted to natural resource restoration, with public access features and amenities that have been discussed and recommended by local residents and regulators. The On-Site Disposal Facility will encompass 123 acres, and post-closure monitoring and maintenance will be in effect. Approximately 23 acres set aside for future community development will be in use in some manner, with its purpose more clearly defined through public involvement over the next several years. Millions of pounds of waste and nuclear materials will have been treated/repackaged as necessary and shipped off site for disposal or interim storage, and last but not least, cleanup of the Great Miami Aquifer will be

well underway and possibly nearing completion. There are no more doubts about closure at Fernald. It will happen. The project is in capable, knowledgeable and experienced hands, and the workers and stakeholders have a seat at the table. Safe, timely and efficient closure of the Fernald site is within reach, and Fluor Fernald is ready, willing and able to make it happen.

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