

Subsurface Contaminants Focus Area: Building on Success

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The Department of Energy's (DOE) Office of Environmental Management is faced with the challenge of cleanup and stewardship of sites that were contaminated by radioactive or hazardous waste resulting from past operations of the nation's nuclear weapons program. With respect to subsurface contamination, EM must address an estimated 1.7 trillion gallons of groundwater and 40 million cubic meters of soil and debris contaminated with radionuclides, metals, organics, and/or other toxic chemicals. Currently, 113 sites in 30 states require cleanup. New technologies and innovative practices are necessary to provide better, safer and less expensive alternatives to current baselines. This cleanup effort is perhaps one of the largest and most difficult environmental tasks facing our country.

The Office of Science and Technology (OST) is an organizational component of DOE's Office of Environmental Management (EM). OST manages a national program to conduct basic and applied research, and technology development, demonstration, and deployment assistance that is essential to completing timely and cost-effective cleanup and enabling long-term stewardship of the DOE nuclear weapons complex. It provides environmental research results, as well as cleanup technologies and systems, to meet EM program high-priority science and technology needs and reduce technological risks and life cycle costs.

A key component of the operations of OST is the Focus Area centered approach. Focus Areas were established as a result of recommendations made by the Strategic Laboratory Council in January 1994. The Focus Areas, each targeting a specific suite of challenges, serve to target EM's science and technology investments on the major cleanup areas for DOE. The Subsurface Contaminants Focus Area (SCFA) was established to be the lead in providing technical solutions for subsurface contamination problems across the DOE complex.

MANAGEMENT APPROACH

The investment philosophy defined by EM for science and technology is solution driven, fully integrated, comprehensive, and embodies a credible decision process. In order to be successful, SCFA must deliver needed technology solutions on time and within budget and must also maximize the return on DOE's investment. Given the diversity of needs and problem sets identified by DOE environmental remediation managers and the magnitude of the subsurface contamination problem, it was determined that a more integrated and focused approach to providing solutions was needed. In order to achieve a "breakthrough" in thinking and program implementation, SCFA utilized the services of a professional organizational consultant to facilitate a process by which the group could jumpstart the program to achieve a level of performance previously not thought possible. Beginning in December of 1998, SCFA conducted a series of sessions to revisit expectations of DOE senior officials and remediation managers, evaluate how the program was meeting these expectations, and identify key success indicators. A number

of diverse perspectives were brought out at these workshops, but there were several consistent themes. These included the need to work on projects that have the highest potential for improvement (step change), maintenance of technical capabilities, integration of basic science into the program, and enhancing communications at all levels.

As a result, SCFA developed a more streamlined approach, called “Breakthrough 2000”, to improve program planning and institutionalize value added. New stretch goals were defined and incorporated into the SCFA planning documents. This approach integrates a number of new initiatives in an effort to stretch beyond predictable outcomes.

SCFA – making a difference in FY00 and beyond

“We are committed to and accountable for identifying and solving DOE’s most pressing subsurface contamination problems.”

By the end of FY01 we are committed to:

- 100 deployments;
- \$500 million in cost savings;
- Completion of 100 technical assistance solutions; and
- Moving at least 10 research projects into the development phase.

These goals are challenging and require a disciplined and multi-faceted approach to program implementation and performance measurement.

To achieve the Breakthrough goals, required the integration of technology capabilities representing a full spectrum of potential solutions (from basic and applied research to deployment of commercially available technologies); establishment of a lead laboratory to harness DOE’s best technical resources; and active involvement by the DOE project managers.

SCFA strives to ensure that all of its activities are solution driven, with a primary focus on the areas of biggest risk. They will be directly linked to cleanup program goals, with financial accountability transitioning to the project manager as the technologies move toward implementation. The SCFA program now incorporates all programs that contribute to deliver solutions to assist the DOE sites in meeting both their near- and long-term regulatory cleanup commitments and long-term stewardship. This means SCFA must have an inclusive program and a diverse investment portfolio that provides the basic research needed to solve complex long-term needs as well as deploying innovative solutions to address near-term needs of the closure sites.

The Lead Laboratory concept is a virtual laboratory comprised of technical experts from each of the national laboratories in DOE. This technical base is augmented, as needed, from industry, universities, and other federal agencies. The Savannah River Technology Center is responsible for ensuring the relevant technical expertise is available to address emerging issues and serves a coordination function among the laboratories.

Much attention over the years has been paid to development and utilization of new technologies. SCFA, however, recognizing that many problems could successfully be addressed by harnessing the nation's technical expertise to work directly with the project managers, tasked the Lead Laboratory to implement a technical assistance program in fiscal year 2000. The intent of the technical assistance is to provide the scientific and technical assistance that cleanup projects need to define and defend cleanup end states, challenge the technical baselines, solve operational problems, and respond to emerging technical issues.

At the time when the Breakthrough goals were first defined, the technical assistance function was a relatively new concept. With the traditional emphasis on deployments, the recognition of technical assistance as a valuable role for the SCFA resulted in an expansion of the way they could address and help solve problems for the DOE sites. Establishing a stretch goal in this area further emphasized its importance and value.

Active involvement by the remediation project managers has been a key to SCFA's success. Ongoing communication with the DOE sites through both formal and informal mechanisms is an important part of doing business and understanding the technical challenges at each site. As such, the project managers are integral partners in the SCFA management approach. The SCFA has a User Steering Committee comprised of representatives from all of the DOE sites with subsurface contamination problems. This committee reviews and approves the SCFA multi-year program plan and other planning documents, inputs to technical and relevancy reviews, and is intricately involved in proposal review and development of program scope. The SCFA also works closely with project managers at each DOE site in identifying and understanding their technology and science needs to facilitate the out-year planning process.

SUMMARY

The SCFA Breakthrough goals represented a stretch beyond what we thought was truly possible or attainable based on our planning at that time. The process of establishing challenging measures and tracking performance against them resulted in a shift in thinking and increased ownership in SCFA's processes and outcomes. This drove SCFA to enhance its program planning, end user interfaces, and technical expertise in order to achieve these results. This has translated to visible results in the field with over 100 deployments and 53 technical assistance activities to date.

After the progress that the Subsurface Contaminants Focus Area has made as a result of "Breakthrough 2000", the standard for successful performance has been raised. Consistent with EM's strategic objectives for science and technology, SCFA has shifted its management focus to solution-oriented science and technology activities that result in the greatest benefit for DOE. To continue making forward progress, SCFA will utilize a

multi-pronged approach of technical assistance, enhanced research, and continued use of innovative technologies to solve near-term problems while developing the necessary knowledge base to understand and address long-term challenges. SCFA's challenge is to continue to build upon the successes of the program while taking the next steps in its evolution.

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