

**DEACTIVATION & DECOMMISSIONING AND FACILITY ENGINEERING
WORKING GROUP
2007 ANNUAL REPORT TO THE DIRECTORS**

Introduction

- ◆ **Vision.** The Deactivation and Decommissioning (D&D) and Facility Engineering (DD/FE) Working Group provides leadership to focus on improving safety and reducing D&D life cycle costs across the Department of Energy (DOE) Complex.
- ◆ **Purpose.** The DD/FE Working Group is a working committee whose intent is to facilitate the objectives of the Energy Facility Contractors Group (EFCOG) to partner with the Office of Deactivation & Decommissioning and Facility Engineering in the DOE Office of Environmental Management (EM) in identifying and addressing key opportunities for improved performance in D&D safety and project execution across the DOE Complex through application of experience, including lessons learned, and technology transfer.
- ◆ **Objectives.** The DD/FE Working Group is committed to the following objectives:
 - Promote, coordinate, and facilitate the active exchange of successful D&D programs, practices, procedures, technology and other pertinent information of common interest which have been effectively utilized by contractors and subcontractors for DOE facilities as well as in nuclear power plant decommissioning and other environmental cleanup scenarios.
 - Identify, analyze and produce for distribution through EM Headquarters important lessons learned that could in a safe manner reduce life cycle costs of EM's D&D Program.
 - Develop D&D case studies for future workshops / training courses.
- ◆ **Scope.** The DD/FE Working Group scope is defined as follows:
 - The DD/FE Working Group will operate within the scope of EFCOG.
 - The area to be addressed by the DD/FE Working Group is facility D&D, including soil and groundwater remediation topics where they integrally relate to facility D&D.
 - The DD/FE Working Group will facilitate interaction with outside agencies and organizations regarding application of D&D principles and methods in the DOE Complex.
 - The DD/FE Working Group will communicate with other EFCOG groups to avoid duplication of effort.
 - Facilities will be covered from the point of ceasing their operating mission through their final declaration of cleanup status. However, activities during the operating mission that prepare for efficient and safe D&D when the mission ceases will be also be within the scope.

- The DD/FE Working Group will not lobby, advocate independent positions, or try to change DOE policy. However, D&D practices as applied to DOE missions may be discussed and suggestions for improvement made to the DOE.

Membership

The DD/FE Working Group formed initially as a Task Group during Fall 2006. Twenty-seven people responded to an August 2006 inquiry for initial interest in participating in the Task Group, and 17 people attended the Task Group kick off meeting October 31, 2006. The Task Group was advanced to a Working Group at the EFCOG Board Meeting February 20, 2007. Membership of the DD/FE Working Group stands at 19 “Active Participants” (i.e., voting members). Twenty “Interested Parties” are also maintained in a list to receive communications about the Group’s activities and occasionally contribute to those activities where their expertise is applicable. The members come from a number of contracting companies and DOE, and represent the national laboratories and major DOE projects in the Complex. Leadership for the DD/FE Working Group is provided by:

- Working Group Officers
 - Chair: Michael B. Lackey, P.E., VP D&D Projects, Fluor
 - Vice Chair: Russell A. Mellor, VP Closure Sites Energy & Environment, Washington Group International
 - Secretary: Lansing G. Dusek, P.E., PMP, Director Regulatory Affairs, Fluor
- D&D Best Practices Review Team
 - Andrew Szilagyi, D&D Program Leader, DOE HQ EM
 - Darin S. Dobbins, Deputy Director ESH&Q Idaho, Stoller
 - Michael H. Auble, Senior Project Manager for D&D LLNL
- Task Group Leads
 - DOE 413.3A EM Clean-up Projects Guide Review
 - John C. Gilmour, SRS Site D&D Chief Engineer, CH2SRC
 - Independent Verification of Cleanup (IVC) Review
 - Russell A. Mellor
 - D&D Knowledge Resource Center Implementation
 - Robert E. Richardella, Director Decommissioning Services, Stoller Corp.
- Steering Committee
 - Michael B. Lackey
 - Sandra Waisley, Office Director, DOE HQ EM
 - George W. Jackson, Senior VP, Fluor Government Group Operations West
 - Joe R. Yanek, Senior Director EHS&Q, Fluor Corporation
 - John R. Longenecker, President, Longenecker & Associates
- DOE Sponsor
 - Sandra Waisley
- EFCOG Sponsoring Director
 - George W. Jackson

The Chair of the DD/FE Working Group was initially designated by the Sponsoring Director for a term of one to two years. After formation of the Working Group, the Vice Chair and a Secretary were elected by majority vote of the Working Group's membership, with the term of office normally being one year. The Vice Chair will normally succeed the Chair.

Objectives and Achievements

The DD/FE Working Group formed at the request of DOE's EM Office of Engineering and Technology to focus on D&D activities with the following purposes:

- Improve identification, dissemination and implementation of D&D Best Practices across the Complex
- Identify transformational changes that can be made to positively affect safety and the D&D baseline over the long term

Members made significant progress in realizing their goals during the past year adding new D&D best practices to the existing EFCOG Best Practices database, participating in lessons learned forums, and contributing to a DOE initiative on identifying technology needs. Additionally, as discussed below, three Task Groups were formed to focus attention on the following initiatives: participating in a DOE project management initiative to develop implementation guidelines for DOE Order 413.3A, participating in a DOE radiological protection initiative to institute a more predictable and standardized approach to approving authorized limits and independently verifying cleanup completion at EM sites, and launching a D&D Knowledge Resource Center to provide real-time solutions to D&D challenges.

The progress made in accomplishing the DD/FE Working Group's objectives was guided by interactions of the full Working Group as follows:

- December 13, 2006 – Telephone Conference
- February 12, 2007 – Telephone Conference
- March 6, 2007 – Meeting at Hanford (17 Attendees)
- April 19, 2007 – Telephone Conference
- August 3, 2007 – Telephone Conference

Numerous Task Group meetings and telephone conferences were also conducted.

Active members are committed to adding at least one new D&D best practice to the existing EFCOG Best Practices database. A review team coordinates comments and works with authors to ensure that the best practices added to the database truly add value and are of consistently high quality. The following three D&D best practices have been fully through the process and appear in a new D&D category on the EFCOG Best Practices website:

- "Evaluation and Control of Airborne Fungal Populations for Worker Protection during the Deactivation of an Abandoned Process Facility"
- "Post-Deactivation Surveillance and Maintenance of Excess Facilities"

- “Use of Commercial Rigid Polyurethane Foam for Decontamination and Decommissioning”

An additional 12 D&D best practices are in various stages of review and approval for posting on the EFCOG Best Practices website.

Besides publishing work on the EFCOG Best Practices website, members of the DD/FE Working Group actively participated in forums to share best practices and lessons learned and stay abreast of developments internationally. In November and December 2006, members of the DD/FE Working Group participated in two separate meetings to share lessons learned in decommissioning nuclear facilities. The first was an interagency meeting at which the DOE, the United States Nuclear Regulatory Commission (NRC), the Fuel Cycle Facilities Forum (FCFF), the Nuclear Energy Institute (NEI), and the Electric Power Research Institute (EPRI) were all represented. The second was an international meeting hosted by the International Atomic Energy Agency (IAEA). Members of the DD/FE Working Group also wrote and presented papers at conferences as follows:

- “Sharing Lessons Learned and Best Practices in Deactivation and Decommissioning Techniques Among U.S. Department of Energy Contractors,” authored by Waisley, Lackey and Dusek; presented at the International Conference on Environmental Remediation and Radioactive Waste Management ICEM2007, September 2-6, 2007, in Bruges, Belgium
- “Improving the Identification, Dissemination and Implementation of Deactivation and Decommissioning Lessons Learned and Best Practices,” authored by Lackey, Waisley and Dusek; presented at the American Nuclear Society (ANS) Topical Meeting on Decommissioning, Decontamination and Reutilization (DD&R), September 16-19, 2007, in Chattanooga, Tennessee

Members of the DD/FE Working Group are guiding future EM work products by contributing their own experience and knowledge from lessons learned and best practices to DOE initiatives. For instance, members provided input to DOE on D&D technology needs for incorporation into the 10-Year Engineering and Technology Roadmap directed by Congress. The roadmap’s purpose is to identify gaps in technology that exist in the current EM program to achieve the safe and compliant disposition of legacy wastes and facilities from defense nuclear applications and to provide a strategy to address those identified gaps. Work on other DOE initiatives is covered below under the applicable Task Groups. Work on all these initiatives has included direct interface with DOE EM personnel and the active participation of the DD/FE DOE Sponsor and her staff.

Task Group Objectives and Achievements

◆ DOE 413.3A EM Clean-up Projects Guide Review

This Task Group is providing input and review during development of implementation guidelines for DOE Order 413.3A, “Program and Project Management for the Acquisition of Capital Assets.” DOE is replacing DOE M413.3, “Project Management for the Acquisition of Capital Assets Manual” with a set of guides, one of which is “EM Cleanup Projects.” The Task Group’s

involvement with DOE G 413.3-8, "EM Cleanup Projects," will help establish clear and executable means of implementing project management requirements from the Order in the unique context of environmental cleanup projects, including D&D projects.

◆ **Independent Verification of Cleanup (IVC) Review**

This Task Group is providing input and review to DOE on a radiological protection initiative to institute a more predictable and standardized approach to approving authorized limits and independently verifying the completion of cleanup at EM sites. DOE has several radiological protection requirements relating to the release of radiologically contaminated property, both real and personal. These requirements include Title 10 of the United States Code of Federal Regulations, Part 835 (10 CFR 835), "Occupational Radiation Protection," and DOE Order 5400.5, "Radiation Protection of the Public and the Environment." The initiative seeks to establish a systematic DOE EM program to implement these requirements and evaluate field and contractor adherence to these requirements. Task Group members coordinated with the EFCOG ES&H Working Group's Radiological Protection Subgroup to provide comments in May 2007 on the proposed EM Headquarters Authorized Limit and Independent Verification Business Plan. This Task Force's members commented on release of real property (i.e., real estate) and the Radiological Protection Subgroup commented on release of personal property (i.e., material leaving a site).

◆ **D&D Knowledge Resource Center Implementation**

This Task Group is developing a D&D Knowledge Resource Center as a front-line effort to disseminate and implement lessons learned and information on best practices to provide real-time solutions to D&D challenges across the DOE Complex. A new D&D hotline and an associated website will be an extension of the existing successful and frequently used As Low As Reasonably Achievable (ALARA) hotline set up and maintained by the ALARA Center at the Hanford site. To ensure a successful outcome, the task team for the effort developed an implementation plan that defines the purpose of the D&D Knowledge Resource Center; defines the topics to be covered; specifies staffing that includes using DOE interns in ready contact with D&D Subject Matter Specialist points of contact across the Complex; and discusses advertising the availability of the website. Implementation planning also considers the necessary approvals and arrangements for contingency staffing to ensure sufficient resources are committed for a successful outcome.

DOE funded a summer intern from Florida International University to work on the project at Hanford, and the intern will continue to aid in the project through the coming year. On August 14, 2007, a Task Group meeting was held on station at Hanford to refine implementation plans so that implementation roll out would integrate well with the existing ALARA Center operation. The meeting also involved personnel from the Savannah River Site ALARA Center. In October 2007, draft implementation products, including web-site plans, were circulated for review and comment by the full DD/FE Working Group.

Planning for the Year Ahead

The next meeting of the DD/FE Working Group is being planned for December. At the meeting current membership will be assessed and targets set as necessary to cultivate adequate representation and participation from across the Complex sites and major contracting companies.

In the coming year the DD/FE Working Group will continue to support the initiatives described above. Those initiatives involving input and review of DOE products will be supported as the DOE's schedule for accomplishment dictates. Implementation of the D&D Knowledge Resource Center is scheduled for the end of February 2008, and an evaluation of initial implementation is planned for June 2008. Metrics will be developed by which to evaluate effectiveness of the center.

Besides continuing work on the initiatives, the remaining D&D best practices are targeted for posting to the EFCOG Best Practices website by the end of March 2008. The new DD/FE best practices are being placed into a specific D&D category that anyone interested in D&D can readily access. During the coming year these D&D best practices will also be reviewed for applicability to, and inclusion in, other categories on the website. Furthermore, existing best practices in the database will be reviewed for applicability and addition to the D&D category. These parallel reviews will create a cross-fertilization that amplifies the effect of the best practices effort.

Opportunities to present more papers born from activities of the DD/FE Working Group will be identified and committed to for 2008. The DD/FE Working Group objective to develop D&D case studies for future workshops / training courses will also be revisited as an area for potential growth.

Lessons Learned

The DD/FE Working Group members are engaged and committed to ensuring value is added by the actions that are taken. Active membership was refined through this first year as those who demonstrated a willingness to engage and produce concrete products and results emerged. Members' time demands were particularly acute due to many of the members being directly involved in the abnormally high number of EM contracting activities this year, making the members' efforts on the DD/FE Working Group all the more noteworthy. Requiring active members to contribute to the best practices effort was helpful in establishing individuals' personal commitment to accomplishing the Working Group's objectives. The use of Task Groups to focus on specific initiatives allowed members to take leadership of projects that are of particular interest to them and successfully multiplied the effectiveness of the Working Group.

Effectiveness Evaluation

While an objective evaluation of effectiveness is difficult to make for work that involves reviewing and providing input to DOE EM products, the fact that the DD/FE Working Group was requested to participate in four different initiatives (one completed, two on-going, and one new opportunity) during its first year indicates that value is seen in the input and feedback provided by the members. More objectively, the addition of three new D&D best practices to the EFCOG Best Practices web site and the presentation of two papers on D&D lessons learned and best practices in major industry forums marked

the beginning of improved dissemination of lessons learned and best practices among D&D leaders in the industry. Lastly, the DD/FE Working Group's launching of the D&D Knowledge Resource Center will begin to produce measurable results in the coming year by which to provide a particularly objective evaluation of effectiveness of that effort.

Recommendations

- The DD/FE Working Group should continue functioning in 2008, pursuing the plans described above as structured with Task Groups ensuring an on-going focus on specific initiatives.
- Opening of the D&D Knowledge Resource Center has particular potential to add enduring value to the DOE EM mission. Continuing support by EFCOG is recommended to ensure its successful implementation in 2008.