

ENGINEERING PRACTICES WORKING GROUP ANNUAL REPORT TO THE DIRECTORS CY 2004

1. Introduction

Executive Summary

Formed in mid-2003, the Engineering Practices Working Group (EPWOG) completed its first full calendar year of existence. EPWOG has gained interest and energy quickly, and is already having positive impact. For example, the group published a recommendation on evaluating Safety System Design Adequacy, a topic of significant interest to contractors, the Department of Energy (DOE), and the Defense Nuclear Facilities Safety Board (DNFSB). Another key accomplishment was a study on Engineering Performance Indicators, based on DOE and commercial nuclear practices.

Engineering Practices is an active group, and has over 100 members, participating in the working group itself or one of its four subgroups: Fire Protection; Engineering Standards; and Configuration Management. A new initiative on Value Management (Value Engineering) is being undertaken this year, coincident with renewed DOE interest in this topic.

Purpose

The purpose of the Engineering Practices Working Group is to promote engineering excellence in the execution of Department of Energy (DOE) missions by sharing best industrial practices, applying lessons learned and providing integrated recommendations to Department of Energy officials.

Objectives

EPWOG facilitates the objectives of the Energy Facility Contractors Group (EFCOG) as it relates to Engineering Practices. EPWOG serves as a the initiator and sponsor of various sub-groups and task groups that are formed from time to time for the purpose of addressing specialized subjects.

Scope

The Group's scope includes the areas of engineering practice that are associated with DOE facilities, programs, and capital acquisitions. This includes the application of engineering practices throughout the lifecycle of DOE facilities, including initial design and construction, commissioning, operation and maintenance, decommissioning, and closure. Engineering practice is the application of engineering disciplines and processes as governed by national codes and standards, recognized quality standards, and DOE orders and regulations.

2. Membership

There are total of 106 members in EPWOG, including 33 members of the working group, and an additional 63 members in the three subgroups. Some EPWOG members also participate in one or more of the subgroups, and the reported numbers only count those members once. Five separate DOE sponsors support the working group and subgroups. There are DOE sponsors from DOE-OECM, DOE-EM, DOE-EH, and NNSA.

Represented member companies include:

AREVA (Framatome ANP)

Argonne National Laboratory - West

Bechtel BWXT, Idaho

Bechtel Jacobs Company

Bechtel Hanford

Bechtel National Inc., (WTPP)

Bechtel Nevada

Bechtel SAIC Company

Brookhaven National Laboratory

BWXT Y-12

BWXT Pantex

CH2M HILL Hanford Group

EXCEL Services Corporation

Fermi National Accelerator Laboratory (URA)

Flour Hanford

Jacobs Engineering

Kaiser-Hill (RFETS)

KSL Services (KBR, Shaw, LATA)

Honeywell, Kansas City Plant

Lawrence Berkeley National Laboratory (UC)

Lawrence Livermore National Laboratory (UC)

Los Alamos National Laboratory (UC)

Midwest Research Institute (NREL)

Oak Ridge National Laboratory (UT-Batelle)

Pacific Northwest National Laboratory (Batelle)

Sandia National Laboratories

Tetra Tech FW

Washington Group International

Washington, TRU Solutions (WTS) WIPP Site

Westinghouse Savannah River Company

Working Group Leadership

Engineering Practices Working Group

Chair	John Gertsen	BWXT Y-12
Vice-Chair	Dave Lowe	Kaiser-Hill (RFETS)
Secretary	Tobin Oruch	Los Alamos National Laboratory (UC)

Fire Protection Subgroup:

Chair	Richard Lewis	Westinghouse Savannah River Company
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Configuration Management Subgroup:

Chair	Tom Reed	BWXT Y-12
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Engineering Standards Subgroup:

Chair	Tobin Oruch	Los Alamos National Laboratory
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3. Objectives and Achievements

EPWOG accomplishes most of its work through task teams that are formed to address specific focus areas that are periodically selected by the membership. Task teams are formed and led by volunteers from the membership. They meet separately and report back to the membership at quarterly meetings. EPWOG meets 4 times per year, twice via nationwide teleconference, and twice in-person. At the meetings, task teams report on progress, new focus areas are discussed, and new task teams are formed.

Accomplishments in the EPWOG focus areas were:

- Safety System Design Adequacy – EPWOG initiated this task team based on interest from Contractors, DOE, and the DNFSB. DNFSB staff had specifically encouraged EFCOG to study this issue. The task team, led by Ken Keith of BWXT Y-12 published a report, “Safety System Design Adequacy” in August 2004. After approval, the report was transmitted to DOE-EH and NNSA, with a copy to the DNFSB. This effort was significant and addressed a difficult topic. There is continuing interest in this topic.
- Engineering Performance Indicators - A task team, led by Dave Lowe, Kaiser-Hill (RFETS) collected, evaluated, and grouped, various performance indicators from DOE and commercial nuclear industry, into a set of “good practice” examples. The report, “Good Practice Example Performance Indicators” was shared with members at the April meeting and is posted on the EPWOG website.
- Design Basis Threat – Anthony Baca, of Sandia National Laboratories, conducted a review of engineering approaches to deal with emerging Design Basis Threat issues, and presented his results at the April meeting. The briefing information will be posted on the website, after review.
- Engineering Issues with Third Party Facilities – An informational teleconference was coordinated on this topic by Tobin Oruch, Los Alamos National Laboratory and Tom Etheridge, Oak Ridge National Laboratory. The teleconference was held on May 27, 2004. Experienced gained from completed and on-going projects was shared for the benefit of members who are beginning to address these issues.

- Engineering Procedures – EPWOG facilitated a voluntary sharing of Engineering procedures among interested members at the October meeting.
- Value Management – Based on interest of members, and at the encouragement of the EFCOG Board of Directors, EPWOG initiated actions to form a subgroup on Value Management (Value Engineering). It is expected that the subgroup will be approved in the early 2005. Richard Harrington, CH2M HILL Hanford, has volunteered to lead the formation of the subgroup. Doug Maynor, DOE NETL, has agreed to be the sponsor. In addition, EPWOG is facilitating DOE Value Management promotional site visits. The first of these was held in conjunction with the October meeting.

Four EPWOG meetings were held in 2004:

January 21, 2004 Nationwide Teleconference
 April 21-22, 2004 General Meeting at Yucca Mountain, Nevada
 July 21, 2004 Nationwide Teleconference
 October 19-20, 2004 General Meeting at Oak Ridge, Tennessee

Fire Protection Subgroup - Objectives and Achievements (Richard Lewis)

The Subgroup focused on the following areas during the reporting period:

- Implementation of Reliability Centered Maintenance (RCM) for selected Fire Systems.
- Benchmarking of Fire Protection Resources in the DOE Complex.
- Development of a list of National Fire Protection Association (NFPA) technical committee members working at DOE sites.
- Development of specific comments on the Draft DOE Order 420.1B.

To support the efforts of the Subgroup four telephone conference calls were held. The conference calls were conducted on the following dates:

January 29, 2004 – Discussed active issues and received questions from the group for further discussion. Twelve group members participated in the call.

April 21, 2004 – Continued discussions on active issues and discussed final plans for the meeting scheduled for June 2004. Ten group members participated.

September 29, 2004 – Discussed benchmarking efforts and Maximum Possible Fire Loss (MPFL) issue. Thirteen group members participated.

December 8, 2004 – Call was to discuss comments on the draft DOE Order 420.1B. Approximately ten group members participated. Comments were forwarded to DOE-HQ.

A meeting of the Fire Protection Subgroup was held during the DOE Fire Safety Workshop in Las Vegas, Nevada on June 23, 2004. The focus of the meeting was to discuss benchmarking results and to hear a presentation on D&D activities at Rocky Flats. Sixteen group members participated.

Deliverables/accomplishments for the year included:

- Developed a list of National Fire Protection Association (NFPA) committee members working at DOE sites.
- Generated benchmarking information on fire protection staffing and costs across the DOE complex.

- Developed consensus comments for DOE Order 420.1B.
- Shared information with other DOE sites to assist in implementation of Reliability Centered Maintenance.

Configuration Management Subgroup - Objectives and Achievements (Tom Reed)

The chairmanship of the Configuration Management (CM) Subgroup changed in June 2004, with Tom Reed, BWXT Y-12, assuming the position from Bob Cullum, WIPP. Many of the site CM representatives have also changed, and the EPWOG-CM roster has now been updated to reflect those changes. The CM Subgroup is now comprised of 24 CM practitioners representing 16 Department of Energy (DOE) Contractor-managed sites with a wide variety of missions. The group is continuing to refocus its efforts, consistent with direction started last year.

A draft outline for "Guide for Applying Configuration Management during Transition, Deactivation, Decontamination, and Decommissioning" was developed. Jim Johnesee has agreed to lead this topical group and, after considering information coming from a facilitated session and Value Engineering session next year, plans are to finalize and issue the guide in 2005.

Engineering Standards Subgroup - Objectives and Achievements (Tobin Oruch)

The Engineering Standards Working Group (ESWOG) held a membership poll and teleconference in July 2004 during which future plans and ongoing initiatives were discussed. The Subgroup also connected with Mary Haughey, EH-22, the Technical Standards Manager and most logical choice for DOE management participation or sponsorship. Minutes are on the EFCOG website.

The ESWOG chair reported to EPWOG on the results of the membership poll, and solicited their input on the continuation of the subgroup. EPWOG members felt that there was a continued need to address issues in Engineering Standards, and recommended a continuation of the group.

A search for a new Chairperson resulted in Stan Palmer, INL, volunteering for the position. Group leadership must seek confirmation from the membership and proceed to tackle new initiatives.

4. Planning for the Next Year

EPWOG has the following initiatives in progress, and planned for 2005:

- Value Management - Fully establish this new subgroup, including approval, membership, sponsorship, and initiating subgroup activities.
- HEPA Filter Testing – In coordination with the ISM Working Group, EPWOG has had on-going interest and activity in this topic. To date, efforts have focused on near-term availability of DOE testing capabilities. Plans are to close out that effort in early 2005, and to focus on standards/acceptance criteria, again, in coordination with the ISM Working Group.
- Criteria for Engineering Involvement in Maintenance – This difficult topic continues to generate significant interest from the members. The task team has been updated and the activity is expected to complete this year.

- Excavation/Penetration Permitting – A survey of practices in this area is planned for completion this year.
- Drawing Management – A task team has been formed and initial surveys have been conducted. This effort is expected to make significant progress this year, resulting in a report to be shared with members.
- Engineering for Non-Nuclear Work – This is a new topic that is expected to initiate this year.
- Human Performance Engineering – This is a new focus area that is expected to initiate later in 2005.
- Engineering Workshop – There is interest in holding an event in the future (1-2 years) for broader participation from member companies. A workshop or alternate format event will be explored during the year. Only planning is anticipated at this time.

EPWOG Meetings planned for 2005:

January 19, 2005	Nationwide Teleconference
April 19-20, 2005	General Meeting at Sandia National Laboratory
July 20, 2005	Nationwide Teleconference
October 18-19, 2005	General Meeting at Washington, DC (tentative)

Fire Protection Subgroup Planning

The Fire Protection Subgroup intends to begin the year by identifying new initiatives that may be appropriate for the group to address. The greatest benefit of the group has been the increased communication within the fire protection community. To assist in this communication, telephone conference calls will continue to be conducted approximately once per quarter, a meeting of the Subgroup will be held, if possible, in conjunction with the DOE Fire Safety Workshop or other forum and the email distribution list and contact list will be maintained.

Configuration Management Subgroup Planning

A CM Subgroup meeting was announced for the first quarter of 2005 in Las Vegas, NV. This meeting is intended to bring the CM Practitioners from different Department of Energy sites together to get to know one another and form a network to evaluate and share methods to solve contemporary CM issues. Briefings from each site will be provided. In conjunction with this meeting, a Value Engineering session is also planned to address "CM for Temporary Facilities to Undergo D&D".

Topical areas to be addressed in 2005:

- As built documentation.
- Document Control and Records Retention.
- Graded Approach (scope of CM application).

Engineering Standards Subgroup Planning

ESWOG continues to work with DOE-HQ on its 2001 suggestion to put a corporate contract in place for online national standards. Mary Haughey, EH-22, now has this action item in DOE.

EPWOG Interactions with Other Working Groups

The Engineering Practices Working Group recognizes a close relationship with activities in the Project Management, Infrastructure Management, and Safety Analysis Working Groups. EPWOG has invited the chairs of those groups to speak at EPWOG meetings to improve communication and awareness. The chairman of the Safety Analysis Working Group presented a briefing of the group's activities at the EPWOG April 2004 meeting. As previously noted, EPWOG has been coordinating efforts with the ISM Working Group, on issues related to HEPA Filter Testing capabilities and associated standards.

5. Lessons Learned

There are no specific lessons learned to report from the Working Group.

A positive aspect of the working group this year has been the increased communication among the Engineering Practices members. Members of EPWOG are now routinely communicating, using the working group as a sounding forum, on issues that arise in their locations. In the Fire Protection subgroup, communication within the DOE Fire Protection community has substantially increased, resulting to very positive response to the Subgroup and its activities.

A challenging aspect of the working group and its subgroups is the great diversity among the various members in how Engineering, Configuration Management, and Fire Protection activities are organized and executed at their sites. Working Groups need to keep this in mind, to ensure value is maintained for all its members.

In the Fire Protection subgroup specifically, lack of funding to allow Subgroup members to participate in face-to-face meetings has hindered exchange of information and development of better working relationships. Teleconferences and holding meetings in conjunction with other Fire Protection community events/conferences have been used to help mitigate that problem.

6. Effectiveness Evaluation

EPWOG has been effective, and the trend is improving. As a relatively new group, some of the initial evaluation is based on interest and feedback from members. New participants, some of whom were skeptical, have joined in endorsing the existence of the group and its accomplishments. Membership is growing for the same reason. The exchange of information and collective problem solving are viewed as positives by the members. Further evidence of its value comes in the frequent e-mail exchanges on specific issues throughout the year. Members treat the group as an additional information and problem solving resource.

Specific evidence of effectiveness this year includes the report on Safety System Design Adequacy, which has been applauded by DNFSB Staff, and is now being implemented at several member sites. The report provides a recommended method to make documented evaluations and decisions on how and where to expend additional resources. This is important because it is an area in which the amount of resources that could be expended is extremely large. That fact was recognized by DNFSB staff, and is why they desired EFCOG to help define a logical, safe, and cost-effective approach.

Another specific example is the use of the Engineering Performance Indicator examples that EPWOG researched and provided as a way to jump-start similar efforts at member companies. Initially, this report has saved some members legwork in determining useful ways to measure engineering performance. Over time, engineering performance and effectiveness will be improved by having performance indicators in place, when they might not otherwise have been created.

The Fire Protection Subgroup has attempted to identify opportunities for cost savings by sharing information on Reliability Centered Maintenance, providing comments to DOE-HQ on proposed revisions to DOE Orders that may increase costs and by increasing communication between DOE Sites to share lessons learned.

7. Recommendations

It is recommended that the Engineering Practices Working Group and its three Subgroups continue their activities in support of DOE and the common interest of the contractor community in accordance with the 2005 plans. It is further recommended that a new subgroup on Value Management be formally chartered and formed. Actions to accomplish that goal are planned for early 2005. The Engineering Practices Working Group is available to help support other critical initiatives of the EFCOG Executive Directors and DOE that may be identified during 2005.