SAFETY ANALYSIS WORKING GROUP (SAWG)
CY 01 ANNUAL REPORT TO THE DIRECTORS
APRIL 4, 2002

Purpose

The purpose of the EFCOG Safety Analysis Working Group (SAWG) is to promote excellence in safety analysis applications and programs throughout the DOE community. The SAWG provides a forum for accomplishing its purpose through its Steering Committee, Subgroups, meetings, teleconferences, workshops, and training. The SAWG is actively involved and integrated with facility and DOE customers to accomplish the following:

- Establish initiatives and priorities
- Facilitate initiatives through subgroups and task teams
- Investigate safety analysis strategies, leverage experiences, share lessons-learned
- Maintain safety analysis networking and interfaces using current technology
- Provide a forum to effectively accomplish activities and conduct business
- Train safety analysts, engineers, and managers

The SAWG adheres to the following principles:

- Operate within the framework of the EFCOG charter
- Ensure that planning and actions promote EFCOG objectives
- Follow applicable DOE and contractor requirements

Membership

The membership of the SAWG Steering Committee and its subgroups includes representatives from EFCOG member companies representing most DOE Sites, National Laboratories, and contractors that support their work. Currently there are 31 members on the Steering Committee, representing 26 contractors at 17 DOE site. In addition, continuous communication with DOE HQ personnel is facilitated through active participation on the Steering Committee, Subgroups, workshops and training functions.

2001 Accomplishments

The SAWG conducts business through its Steering Committee (SC) and subgroups. The SC coordinates the subgroup actions, recommends changes, and establishes priorities. The SC also undertakes short-term activities through informal task teams or as a collective effort. The SAWG Steering Committee added seven new members during CY2001.

Annual Safety Analysis Workshop

The most significant SC activity each year is planning the Annual Safety Analysis Workshop (SAW). The SAW provides a national vehicle for training, technical presentations, panel discussions, and interaction among the entire DOE community. The SAW is unique in that it is

the only national forum of its type, bringing together most of the significant policy makers, line managers, analysts, trainers, reviewers and approvers of DOE safety analysis related activities, applications, and documentation. Despite ever-tightening budgets, participants from the DOE, contractors, and DNFSB continue to report substantial benefit from the SAW and highly endorse its value to addressing issues and enhancing applied and compliant safety.

The 2001 workshop, the 11th annual, was the first SAW to be presented as an embedded workshop within a separate organization function, the American Nuclear Society (ANS) General Meeting. The embedded workshop was the result of the SAWG and ANS desires to cross-cultivate existing safety-related cultures. The Westinghouse Savannah River Company and Westinghouse Safety Management Solutions LLC hosted the 2001 SAW in Milwaukee, WI. In the last few years, training has grown in significance and participation at the SAW, and the workshop has expanded to accommodate formal training, invited speakers, and multiple panel discussions. A total of fifteen formal classes, presented over 4 days, provided training for approximately 160 registrants saving member contractors nearly $50,000 in technical course fees. Invited speakers included James J. Mangeno, Senior Advisor for Environment, Safety, and Health to the Administrator, DOE-NNSA , and Ambrose L. Schwallie, President and CEO, Washington Group International. Workshop Proceedings are available from Kevin O'Kula, WSMS - Savannah River or from the workshop web-site (www.sawg.org).

Issuance of the Interim 10 CFR 830, Subpart B, Safety Basis Requirements

A continuing significant development in 2001 was implementation strategy following the issuance by DOE on October 10, 2000 of the "Interim Final" regulation, 10 CFR 830, "Nuclear Safety Management," particularly the new Subpart B, Safety Basis Requirements. This regulation codifies many of the authorization basis requirements contained in existing DOE Orders, plus added additional activities, such as onsite transportation, to the scope of these requirements.

The SAWG focus for this year has been primarily around issues/interpretations associated with compliance with this Rule. The annual January Safety Basis workshop (2002) was designed specifically to address the issues with on-site transportation and criticality safety compliance. The June (2002) Annual SAW theme is Rule compliance, and numerous papers, panels, and training sessions will focus on Rule issues.

2001 Subgroup Accomplishments and Planned Activities

The SAWG conducts the majority of its activities through its subgroups. The subgroups provide a forum via teleconferences, e-mail exchanges, workshops, and training to exchange information and lessons learned regarding the subgroup's specific areas of expertise. When significant issues are identified by the SAWG and/or DOE, these are usually picked up through a subgroup and information/resolution planned and documented. In addition to their planned activities, meetings, and teleconferences, the Accident Analysis, Safety Basis, Controls Selection, and Unreviewed Safety Question subgroups helped to develop and review proposed interpretations and guidance for many DOE directives and issues.

Foremost in 2001 was the annual Safety Basis Subgroup Workshop held in January to address issues associated with updating DOE Technical Standard 3009-94, cited by 10 CFR 830, Subpart B. This workshop, now in its 5th year, was originally designed and organized as a working meeting to address common DOE related safety analysis application and compliance issues. The

workshop has come to serve as a working forum for national safety analysis issue identification and resolution, and is attended by 100-150 DOE, contractor, and DNFSB personnel. Many ideas, interpretations, and common questions realized in this workshop are presented as either completed, or work in progress, papers, panels and discussions at the annual SAW meeting presented in June.

- Host the Annual Safety Basis issues workshop
- Provide support, information, and review of DOE issues and directives.
- Provide input and assist the DOE in the resolution of issues associated with DNFSB/TECH-25 (Quality Assurance for Safety-Related Software at Department of Energy Defense Nuclear Facilities, January 20, 2000).
- Conduct in-depth training in DSA, TSR, and USQ processes, including hazards analysis, source term analysis and chemical and radiological dispersion / consequence analysis.

Accident Analysis Subgroup

- Complete the development of the Accident Analysis Guidebook. Due to funding limitations distribution of major potions of the guide was delayed, but is currently scheduled for 2002. When distributed the AAG should have formal training provided at the Annual SAWG Workshop and also at specific DOE site, and/or central, locations as desired.
- Continue to support the DOE Safety Analysis Software Group per DOE/EH project plan for resolution. Included is support of deficiencies noted in DNFSB/TECH-25 (Quality Assurance for Safety-Related Software at Department of Energy Defense Nuclear Facilities) through input and technical assistance.
- Continue to provide formal training in source term analysis and chemical and radiological dispersion/consequence analysis. Formal theoretical and applied computer code training was provided at the 2001 Annual SAWG Workshop, including; tritium dispersion & consequence modeling, Temporary Emergency Exposure Limits (TEELs), Radiological Safety Analysis Code (RSAC-6), RADTRAN 5, MACCS 2 and accelerator safety analysis. Training is again being planned and scheduled for this year's 2002 annual workshop.
- Continue to integrate with the ANS Nuclear Installation Division (NID). The 2001 Annual Workshop was embedded and conducted as part of the ANS regular Summer Meeting. This was a direct result of mutual participation by those members that are in both the SAWG AA Subgroup and also in the ANS NID towards fostering sharing of information, methods, and cost-effective approaches towards issue resolution.
- Provide experience/guidance paper on Appendix A to DOE-STD-3009-94 to address taking credit during unmitigated accident analysis. This paper was initiated in 2000, but was postponed to support the AA Guidebook. The paper will be re-drafted in CY 2002.
- Establish (previous work but primarily in 2002) computer code candidates for Safety Analysis toolbox and provide interim guidance on use for supporting 10 CFR 830 DSAs. To include report on "Selection of Computer Codes for DOE Safety Analysis Application, and guidance reports for computer models supporting MACCS/MACCS2, ALOHA, and CFAST.

- Develop position/guidance paper on use of Dose Conversion Factors (DCFs) from ICRP-68 for use throughout the DOE Complex. Status report to be provided at the June Annual SAWG Workshop (2002).
- Establish an Accident Analysis database to promote information sharing and issue resolution outside of the Annual SAWG Workshop. Create means to share information more readily on site issues, methods, codes, analysis and training (2002).
- Develop status reports on transportation waste drum and waste drum storage facility, and transportation accident analysis. (2002).

Safety Basis Subgroup

- Assisted DOE HQ in the review of the 10 CFR 830 Implementation Guide and proposed revisions to DOE-STD-3009 and STD-3011. Continuous dialogue with DOE field and HQ personnel, and participation of DOE personnel on both the SB Subgroup and SAWG Steering Committee facilitate informal DOE requests for review and comment.
- Hosted the 6-7 February 2001 Authorization Basis Workshop in Albuquerque, NM to update DOE-STD-3009-94. A draft appendix addressing the selection and implementation of safety structures, systems, and components and technical safety requirements was developed. Portions of this material were later used in DOE G 420.1-1.
- Planned for the 29-30 January 2002 Safety Basis Workshop in Albuquerque, NM to develop strategies for complying with 10CFR830 Subpart B by improving the integration of nuclear criticality safety and transportation safety with facility safety.
- Deleted the Authorization Basis Database on the AB Subgroup Web page because it was to be superseded by the DOE Safety Basis Information System.

Chemical Safety Subgroup

- Completed a draft Chemical Safety Handbook, Vol 2.

  http://tis.eh.doe.gov/web/chem_safety/

- Co-hosted with DOE the 2001 Chemical Safety workshop in Washington, DC on October 23-25, 2001, also conveyed via videoconference to DOE Operations and Field Offices.
- Develop a model for Chemical Hazard Characterization (CHC) and Chemical Safety Analysis (CSA), based on "Current Chemical Safety Analysis Practices" at various DOE sites.

Controls Selection Subgroup (activities planned for CY 2002)

- Assist DOE HQ in review and comments for DOE G 423.1 Implementation Guide for Technical Safety Requirements
- Established initial contacts with both Transportation and Criticality Safety Groups outside of EFCOG organization to offer assistance in new 10 CFR 830 Rule requirements
- Assist Criticality Safety Support Group with interpretations of DOE G 421.1 Implementation Guide for use in Developing Documented Safety Analysis to meet Subpart B of 10 CFR 830,

DOE G 423.1 Implementation Guide for Technical Safety Requirements and DOE G 424.1 Implementation Guide for use in Addressing Unreviewed Safety Question Requirements.

Training Subgroup (activities planned for CY 2002)

- Assist the Annual Workshop Chairperson with the planning and execution of Workshop training.
- Update and expand the Safety Analyst Training Vendor Course List.
- Update the Safety Analysis Training Plan.
- Update and expand the Training Subgroup Web Page.
- Assist sites in developing training plans and guidelines for qualifying safety analysts.

Unreviewed Safety Question Determination Subgroup

- Assist DOE HQ in the development and review of USQ related issues, including contractor interpretation of USQ process application.
- Supported Unreviewed Safety Question training at the 2000 Safety Analysis Workshop.
- Develop white paper on "Accidents of a Different Type" to aid in interpretation and training. (planned for CY 2002)

Key Objectives, Goals, Processes, and Timelines, for CY 2002

2002 Safety Analysis Workshop

The Annual Safety Analysis Workshop is planned for June 22-27, 2002 in Oak Ridge, TN. This year the workshop is hosted by UT-Battelle, BWXT Y-12, Bechtel Jacobs, and SAIC. Three full days of training are offered in advance of the technical sessions. The Keynote Speaker, Beverly A. Cook, is the Assistant Secretary for Environment, Safety, and Health. Details on the workshop are available at http://2002.efcog.org/.

2002 Safety Basis Workshop

The 2002 Safety Basis Workshop occurred January 29-30, in Albuquerque, NM. The workshop focus this year was on-site transportation and criticality integration relative to the 10 CFR 830 Rule. Action items supporting development of papers and panel presentations on issues and resolution are being addressed for presentation at the June 2002 Annual Safety Analysis Workshop.

Significant Issues

- Continue to implement 10 CFR 830 safety basis requirements for onsite transportation activities, integration of nuclear criticality safety, assessment of Rule compliance, and development of common implementation strategies. The SAWG continues to work with the DOE HQ Program Offices, Operations and Field Offices and contractors to share information and coordinate strategies to support cost-effective Rule implementation. This activity will proceed throughout CY 2002.

- The DOE has a much broader range of chemical hazards in combination with radiological hazards than is found in commercial industry. As a result, treatment of chemical safety hazards in DOE facilities continues to challenge the DOE community due to their number and complexity. The SAWG, in tandem with the DOE Chemical Safety Topical Committee, is attacking specific issues and supporting the development of new information about DOE chemical hazards (see Chemical Safety Subgroup Report). This is judged to be a continuing issue throughout CY 2002.

Subgroups' Status

The Accident Analysis, Chemical Safety, Control Selection, Safety Basis, Training, and USQ Subgroups are all currently active (2002). The Control Selection, Training, and USQ Subgroups were all re-activated in early 2002, having been moved to "inactive" for CY 2001. Issues associated with the inactive subgroups were moved to the Safety Basis Subgroup, pending identification of the need for re-activation. Interest in re-activation of the Facility Disposition Subgroup, and establishment of a Transportation Subgroup and Nuclear Criticality Safety Subgroup has been identified and will be evaluated at planned interest sessions during the Annual SAWG Workshop in June (2002).

Lessons Learned

Over the past several years, the working group has tried to work closely with DOE-EH, EM, DP, and NNSA, the program offices who are our primary customers. In addition, we have increasingly involved field office representatives in our activities. This combination of HQ and field involvement in process development, training, and workshop activities has significantly increased the effectiveness and value of our activities. We will strive to increase field office presence in SAWG functions.

Funding of activities is a primary problem. While significant issues continue to challenge the DOE community in the area of both applied and compliant facility safety, via safety basis requirements, and methods for performing safety analyses, it is increasingly difficult to fund activities that may provide long-term benefit. Fewer and fewer DOE sites have specifically identified funding for EFCOG activities. The lesson learned is that while using technology to go to more and more electronic communication the benefit of face-to-face interaction is invaluable. See Recommendation 1 below.

Recommendations

- The EFCOG should provide facilities for each working group to hold a face-to-face meeting in Washington, D.C. coincident with one of the planned semiannual Working Group Chairs meeting. This would provide a means for each working group to interact with their EFCOG and DOEHQ sponsor while in Washington, and save travel expense for the Chairs by allowing them to combine these activities.
- The working group should be maintained, as it continues to provide cost-effective service to our contractors and DOE customers in issue identification and resolution, formal safety related training, development and review of DOE directives and guidance, and ongoing shared experiences and lessons learned. In particular the SAWG has actively facilitated

complex-wide communication in meetings, workshops, and all manner of information-gathering relative to pursuing efficient implementation of 10 CFR 830.

- The SAWG recommends the formation of a dedicated task group to make specific recommendations for implementation of 10 CFR 830, Subpart B for transportation, and also criticality safety issues. The traditional facility safety basis practitioners are typically ill informed regarding transportation issues and vice-versa, so the group should include representatives of both communities. Although criticality safety analysts are integrated with the safety analysis community at most DOE sites. working together and understanding each others needs and goals, specifically relative to 10 CFR 830 compliance, is not always clear. The SAWG has initiated dialogue through the January 2002 Safety Basis workshop and has included criticality safety representatives from both the Criticality Safety Support Group (DOE) and the Criticality Safety End Users Group on the SAWG Steering Committee.