



**Energy Facility Contractors Group (EFCOG)
Safety Analysis Working Group (SAWG)
ACCIDENT ANALYSIS SUBGROUP**

MEETING MINUTES

April 30, 2000
Santa Fe, NM

The EFCOG/SAWG Accident Analysis Subgroup held its annual meeting on the evening of Sunday, April 30, 2000 in conjunction with the Tenth Annual Safety Analysis Workshop. Kevin O’Kula, the subgroup co-chair for the 1998 – 2000 period (with Al Wooten), called the meeting to order at approximately 6:45 PM. O’Kula introduced the new chair, Vern Peterson (RFETS), and vice-chair, Arthur Crawford (LANL), and turned the meeting over to Peterson.

Peterson opened the meeting by welcoming the members and guests and discussing the agenda items intended for the meeting. This agenda is presented as Attachment A. The list of attendees is presented as Attachment B.

Accident Analysis Guidebook Status

O’Kula presented the current status of the Accident Analysis Guidebook (AAG) project, which has been one of the principal projects backed by the subgroup. The AAG is a DOE-sponsored project with the objective of producing a comprehensive document containing recommended approaches and key sources of data and methodology recommendations on accident analysis. It is written for current safety analysts, as well as those working for first time in the safety arena. In short, it is a “primer” for performing accident analysis that best meets DOE requirements for safety analysis documentation.

The AAG has been sponsored by DOE/HQ/DP-45 (Dae Chung). DOE funding was provided only through the end of FY99. As of October 1999, work has proceeded only on a piecemeal, voluntary basis and little further progress has been made. O’Kula estimates the AAG is about 70% complete and that another 2,100 hours of full-time equivalent is required to complete it. This corresponds to about \$175 K in funding according to his estimate.

Subsequent discussion showed much interest within the subgroup for the AAG and the need for continued support through its completion. Members were encouraged to approach management at their respective sites to provide funding for the completion of this project. John

Rice later presented these needs to the EFCOG/SAWG Steering Committee to solicit its support.¹

DNFSB Report

Chip Martin, of the Defense Nuclear Facility Safety Board (DNFSB) staff, presented a summary of DNFSB Technical Report 25 on Quality Assurance for Safety-Related Software at Defense Nuclear Facilities. Confidence in safe operation of DOE nuclear facilities is highly dependent upon the quality of the computer codes used to determine which controls are important to safety. Deficiencies in such codes have been noted. Recommendations for improving the situation include the following. (1) Assess the adequacy of currently used codes and develop a “tool box” of the best codes. (2) Develop short courses on the use of such codes. (3) Consider experimental programs to validate calculations made with these codes. (4) Develop a web site to promulgate lessons learned, share data and test problems, communicate information about code problems and fixes, and provide a forum for problem discussion. (5) Identify a core group of experts to provide advice and resolve future technical problems. Martin also commented on the need for the AAG (discussed above). He also indicated that the APAC reports (discussed below) were a primary source of the computer model information.

Taking Credit in Unmitigated Accident Consequence Evaluation

Louis Restrepo summarized a paper on this subject that he presented in detail later in the SAWG Workshop. The issue is what is meant by unmitigated. It is not uncommon for analysts to take credit for certain controls without recognizing they are doing so when evaluating “unmitigated” accidents. This can lead to screening out certain accident scenarios that may, in fact, require the presence of certain controls for safe facility operation. He emphasized the importance of taking credit only for those passive controls that will not be impacted by the accident when considering what is meant by “unmitigated”.

Training at Future Workshops

Lorraine Segura, the Chair of the EFCOG/SAWG Training Subgroup, noted that training at the Safety Analysis Workshops has become one of its primary attractions. Certification Maintenance (CM) credits for taking the training has recently been added for many of the courses. A discussion followed on the need for *meaningful* accreditation of the persons taking the training. While many of the courses present good information, an improvement would be to measure the level of understanding of attendees by testing on the enabling objectives.

It was recommended that more courses be modified to require that trainees pass a meaningful test at the end of the course, similar to TSR training. The credits awarded thus would have added meaning. (One to two additional courses will be brought to this level in 2001.)

¹ The SAWG Steering Committee met three days later and moved to support this effort. Brad Evans, SAWG Chair, recommended that the Steering Committee highlight the value of the Guidebook with their DOE counterparts, and ask whether support could be made available at the local field office level. To date four of the field offices have been favorable towards this concept.

Internet Availability of APAC Reports

Kevin O’Kula reviewed the status of the Accident Phenomenology And Consequence (APAC) Methodology Evaluation reports. These reports were the focus of much of the effort of earlier Accident Analysis subgroup meetings. Six working groups prepared the reports:

- Fire
- Explosions and Energetic Events
- Spills
- In-Facility Transport
- Radiological Dispersion/Consequence
- Chemical Dispersion and Consequence Assessment.

While three of the reports have been published, the other three were left in “Final Draft for Review” status. Before the end of the year, the documents will be made available on the EFCOG/SAWG web site (see Attachment C).

The report from Working Group 5 on computer codes for Atmospheric Radiological Dispersion and Consequence hasn’t yet been released but will soon receive its final review and be available on the web site. Restrepo reported that the Fire Working Group report is now four years old and needs to be updated. O’Kula indicated that an “Editor’s Notes Page” will be included on the EFCOG web site to point out where improvements and advances have been made relative to the computer models evaluated several years ago.

New Business

Peterson asked if sites other than Rocky Flats are considering using the Dose Conversion Factors (DCFs) recently published in ICRP-68. Most sites continue to use the older ICRP-26/30 DCFs. However, the newer DCFs from ICRP-68 are considerably lower than the older values for plutonium and americium for most chemical forms, and if used, could lead to a reduced control set. Subsequent discussion showed that no other site is currently using ICRP-68 but that the Subgroup should address this issue. It was motioned that a white paper be generated to discuss the newer DCFs and the merits of applying them in the course of accident analysis for DOE facilities. Vern Peterson, Art Crawford, and Carl Mazzola will prepare this White Paper.

Peterson also asked what distance is used for evaluating dose to the collocated worker at the various sites. Most sites use 100 m but DOE-STD-3011-94 gives an example of 600 m. Dick Englehart (DOE/HQ) pointed out that the new DOE-STD-3009-94, Appendix A doesn’t require any evaluation of dose to the collocated worker, so the issue of what distance to use is moot. The DOE/HQ position is that a dose to the collocated worker can still be evaluated to add perspective but controls are not to be based on such calculations. Thus, either 100 m or 600 m can be used. (It should be noted, however, that not all field sites follow this guidance.)

An informal survey is planned to tabulate what approaches are being used at the various sites and the intent of the quantitative dose estimates.

The meeting was adjourned at approximately 9:15 PM.

ATTACHMENT A

**EFCOG/SAWG ACCIDENT ANALYSIS SUBGROUP MEETING
APRIL 30, 2000**

Time	Topic	Speaker/Discussion Leader
18:30	Welcome & Installation of new Chair and Vice-Chair	Kevin O’Kula, Vern Peterson, and Art Crawford
18:35	Accident Analysis Guidebook Status	Jofu Mishima and Kevin O’Kula
19:15	Technical Report 25 on Quality Assurance for Safety-Related Software at DOE Defense Nuclear Facilities	Chip Martin, DNFSB Staff
19:30	Taking Safety Credit in Unmitigated Accident Consequence Evaluation	Louis Restrepo
20:00	Training Emphasis in Future Workshops: Should We Qualify Accident Analysts in our training sessions?	Lorraine Segura and Kevin O’Kula
20:30	Internet Availability of Accident Phenomenology and Consequence(APAC) Evaluation Reports	Kevin O’Kula
20:45	1. Issues, New Business - use of ICRP-68 DCFs - CW distance: 100 or 600 m? - other 2. News from around DOE Complex	Vern Peterson and from the floor
21:00	Meeting Adjournment	Vern Peterson

ATTACHMENT B**List of Attendees at April 30, 2000 Accident Analysis Subgroup Meeting**

Name	Organization	Telephone	e-mail address
Vern L. Peterson	RFETS (RMRS)	303+966-8479	vern.peterson@rfets.gov
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John W. Rice	Bechtel BWXT Idaho	208+526-4206	wjc@inel.gov
Lorraine Segura	LANL	505+667-2613	lsegura@lanl.gov
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Kevin O’Kula	WSMS	803+502-9620	kevin.okula@wxsms.com

ATTACHMENT C

Documentation of APAC Project to be Posted on www.efcog.org/sawg Website

- **Fire Analysis Working Group**
- SNL Report Issued in April, 1996
- **Explosions & Energetic Events EEE Working Group**
- (A. D. Little/ANL) Report Submitted June 1997
- **Spills Working Group**
- LLNL - UCRL-ID-125479 Finalized October 1997
- **In-Facility Transport Working Group** -
LANL Document (LA-UR-96-2952) Issued September, 1996
- **Radiological Dispersion/Consequence Working Group**
- Final Report (WSRC-TR-96-0126) Rev. 3 mid-2000
- **Chemical Dispersion and Consequence Assessment Working Group**
- ANL Final Report ANL/EAD/TM-75 (September 1997)