

**TRAINING/RETRAINING TO ENSURE CORE COMPETENCY:  
AN UPDATE FROM THE JANUARY 2000 AB WORKSHOP**

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**ABSTRACT**

This paper provides an update on current efforts being made by the Safety Analysis Working Group (SAWG) Training Subgroup regarding authorization basis and safety analyst training. During the January 2000 Authorization Basis Workshop, two 2-hour sessions were presented regarding training and retraining to ensure core competencies for safety analysts. Issues discussed related to the lack of formal authorization basis (AB) qualification and training programs at DOE and DOE subcontractor sites. These issues included (1) lack of consistent training programs, (2) lack of resources (both funding and staffing for this training) and, (3) availability of cost-effective training.

**INTRODUCTION**

DOE and DOE subcontractors lack formal authorization basis qualification and training programs because of limited guidance and resources. Attempts have been made by both DOE and DOE subcontractors to alleviate this problem but have been unsuccessful in establishing (1) consistent AB training programs, (2) cost-effective AB training, and (3) resources, both funding and staffing. Representatives from Savannah River Site (Georgia), Idaho National Laboratory, Nevada Test Site, Los Alamos National Laboratory and the Waste Isolation Pilot Plant (New Mexico), Pantex (Texas), Hanford River Protection (Washington), and DOE Headquarters attended the January 2000 AB Workshop's Training Presentation and provided valuable feedback on this process. This paper provides elements from the January Workshop and an update on the current efforts being made to address these issues.

**DISCUSSION**

It is desirable for safety analyst training programs across the DOE complex to provide a consistent level of training for personnel at any nuclear or nonnuclear facility. An initial effort was made approximately five years ago in developing some of the AB training courses Department of Energy (DOE) and DOE subcontractors needed. Courses included Unreviewed

over a period of time using DOE orders, standards, policies, and other requirement documents. Integrated safety management is incorporated within these documents.

Key elements from the reference information include recommended core competencies such as Recommended Qualification Criteria; Required and Recommended AB Training, and Required and Recommended AB Retraining.

The “Guidelines for Training and Qualification of Safety Analysts” document contains guidance for use by DOE site contractors in the selection and training of safety analysts. It also contains recommended minimum “Qualification Criteria” requirements necessary for a safety analyst position and is in accordance with DOE Order 5480.20. This guidance also emphasizes that the training be performance-based.

The “Safety Analyst Training Plan” can be used as a template for developing site-specific safety analyst training. It suggests basic, intermediate, and advanced level training classes in an effort to develop consistency. Each site must evaluate their training needs and adjust their needs appropriately. Specific training requirements should be established and documented. Retraining should be required on a two-year basis, and training necessary to correct deficiencies should be provided. Individual training plans should be developed for all candidates to determine the level of training required for initial qualification as a safety analyst. Training materials should be developed and presented by content subject matter experts.

The “Safety Analyst Training Vendor Course List” lists general safety analyst training and vendors available with different levels of performance-based safety analysis training. Courses listed may assist facilities with complex-wide or facility or site-specific safety analysis training. Where courses are not available through vendors, subject matter experts and consultants are listed. Some courses listed were specifically developed for the DOE and are offered through interlaboratory agreements.

Authorization basis training is not available at many sites because of a limited number of safety analysts at some sites, no programs in place for support, lack of budgets for support, and lack of DOE requirements for specific authorization basis training. To help alleviate these problems, various training methods and training media, as well as costs associated with these methods, were presented at the January AB Workshop to assist participants who have these concerns. Interactive participation was encouraged during these two days, and participants brought both issues and recommendations to the sessions.

Some of the other training issues that these participants discussed included “(The) time frame of Authorization Basis training varies for new Safety Analysts. Some sites allow a ‘break-in period,’ and other sites depend on hiring experienced analysts;” “Consistency of training is not only lacking for site safety analysts but more so for site contractors who do safety analysis work.

this matrix to site point of contacts. This will also be posted on the Web Site. (3) The subgroup will develop training and qualification criteria for contractor independent safety reviewers of safety analysis documentation. This document will be sent to AB training site points of contacts and posted on the Web Site. (4) The subgroup will become more active with the other SAWG subgroup chairs and the steering committee in addressing consistency of core qualification requirements at sites. (5) The Subgroup will identify safety analysis training courses that can be accomplished by on-the-job training. (6) The Subgroup will gather safety analysis training course evaluation information and post this on the Web Site. (7) The subgroup will actively encourage greater participation on this committee from AB training site points of contact. (8) The subgroup will work closer with DOE Headquarters and field offices regarding safety analysis training and establishing consistent requirements.

Since the January AB Workshop, the Albuquerque Operations Office Independent Safety Review Division stated that they will be developing a readiness review requalification computer-based training (CBT) program within the next 1 to 2 years. More DOE sites are promoting video teleconferencing as an alternative to travel. These were two of many training methods discussed at the January workshop.

A major issue that surfaced after the January workshop was the Defense Nuclear Facilities Safety Board (DNFSB) TECH-25 Report dated January 20, 2000, entitled "Quality Assurance for Safety-Related Software at Department of Energy Facilities." This report states that "During 1999, the Board reviewed the status of software quality assurance (SQA) documentation used by DOE, including that used to develop information for decisions on safety-related design and software programs used to control safety-related systems.

The DNFSB TECH-25 Report also states that "According to recently released studies, fewer than four percent of computer codes relied upon for the safety bases of DOE's facilities meet current industry standards for SWA. This situation is of significant concern because the use of software of poor pedigree has the potential to severely degrade the safety bases. Furthermore, numerous problems regarding the correct execution of safety analysis codes have been identified, indicating a lack of adequate guidance and training in this area."

Of the many computer codes referenced in the TECH-25 Report, GEN II, MACCS 2, and RSAC-6 are offered during the annual EFCOG SAWG workshops as well as throughout the DOE sites and are listed in the vendor course document already referenced in this report. RSAC-6 was subjected to rigorous (software quality assurance) (SQA) and appears to be rigorous and consistent with the current industry standard. The GEN II code has documentation and quality assurance and has been accepted by DOE for use in accident consequence calculations for safety analyses. The MACCS 2 predecessor code MACCS was developed within a well-considered SQA plan for Nuclear Regulator Commission applications. This is one of the most extensively used codes for authorization-basis consequence analyses in the DOE complex.