

Evaluation of Authorization Basis Capability

Background

The working group was tasked by the Federal Technical Capability Panel (FTCP) to review current practices and experience in performing US Department of Energy (DOE) authorization basis reviews in order to identify good practices and opportunities for improvement. The working group was tasked to identify specific actions to be pursued to upgrade and enhance the capability and qualifications of DOE authorization basis (AB) personnel, to improve the training and development process and to enhance the pipeline of federal authorization basis personnel. For personnel who have met existing DOE and/or site qualification requirements, it will not be mandatory that they requalify using the new requirements. However, they are encouraged to use the new requirements as a skills enhancement. Finally, the working group was to develop an action plan to define specific objectives, responsibilities, schedules and resources required.

The working group was divided into three sub-groups: sub-group one reviewed good practices and opportunities for improvement; sub-group two reviewed actions to enhance training and qualification and improve the hiring pipeline; and, sub-group three developed roles and responsibilities for AB personnel.

Sub-group one conducted a survey of DOE Headquarters offices and sites and developed a list of good practices and opportunities for improvement. Several of the recommendations are included as action items in this Plan. A summary of the review results is attached to this Plan (Attachment 1).

Sub-group two also conducted a survey of DOE Headquarters offices and sites. The survey noted that there was a significant amount of emergent work in the AB area. At some sites, AB personnel are nearing retirement with no replacements in sight. Additionally, there are serious shortfalls of senior AB personnel at some sites. Specific expertise is not always available, at some sites, to answer specific AB problems.

Sub-group three reviewed roles and responsibilities for AB personnel. The group concluded that the roles and responsibilities in DOE-STD-1183-2004, "Nuclear Safety Specialist Functional Area Qualification Standard" were sufficient.

The term "AB Personnel," as used in this evaluation, is defined as personnel whose duties include most or all of the functions in the list of "Duties and Responsibilities" (Attachment 2) in DOE-STD-1183-2004.

Action Plan

The working group recommends that the FTCP forward the following Action Plan to the Program Secretarial Officers for implementation.

Action 1

Designate AB personnel as a critical resource. Use all approved methods to hire and retain quality AB personnel. Conduct a work force analysis of AB personnel similar to that used for Facility Representatives (FR) and Safety System Oversight (SSO) personnel. Track AB staffing and report quarterly to senior management.

Objective Ensure that DOE has sufficient AB personnel to complete required tasks.

Responsibilities 1a. Designate AB personnel as a critical resource – MA-3
 1b. Work Force Analysis – FTCP
 1c. Track and Report Quarterly – FTCP

Schedule Complete all actions by January 2006

Resources Monetary for bonuses, incentives, etc. Minor staff work for analysis, tracking and reporting.

Action 2

Develop an Authorization Basis Curriculum for use in training of AB personnel by qualified instructors.

Objective Ensure that personnel assigned to AB duties are qualified to perform them and that they maintain their qualifications.

Responsibilities 2a. Establish AB curriculum – National Training Center (NTC)
 2b. Identify AB experts to assist NTC in course development – FTCP

Schedule Start establishment of curriculum – October 2005 (Complete)
 Identify AB expert experts – November 2005
 Interim Progress Report to Senior Management – January 2006
 Curriculum established – July 2006

Resources This is consistent with courses and instruction by NTC for STSM, GTB and SSO initiatives. AB personnel time in assisting in course development

Action 3

Develop standardized tests for each module of the curriculum developed in Action 2 to supplement site-specific examinations.

Objective Provide a check that taught material has been sufficiently retained.

Responsibilities Develop standardized tests – NTC

Schedule Tests available for use – June 2006

Resources FTE staff assigned to develop tests.

Action 4

Promulgate the lessons learned developed by the working group.

Objective Share what was learned with the DOE complex.

Responsibility Promulgate information – FTCP

Schedule Information promulgated – November 2005

Resources None

SUMMARY OF RESULTS FROM SURVEY FOR GOOD PRACTICES AND OPPORTUNITIES FOR IMPROVEMENT

Best practices for development, review and approval of Nuclear Safety documents

- Graded approach for safety basis document reviews to prioritize use of resources (DOE)
- Procedures for review and approval of nuclear safety documents (DOE)
- Procedure for development of nuclear safety document (contractor). Interactive session between the contractor and DOE
 - 50/75/90% reviews
 - docket meetings
 - nuclear safety docket for prioritization
- Standardize list of courses for qualifications of nuclear safety analysts and provide complex-wide (DOE and contractors) -- safety basis academy could be a mechanism for implementation
- Use of DOE subject matter experts in DSA reviews improves quality of DOE review (DOE)
- Use of a well-rounded team improves the quality of the DOE review

Identify opportunities for Improvement for site development, review, approval and Implementation of nuclear safety documents

- Integrate risk acceptance evaluation for management to make a final decision (graded approach) (DOE)
- Involvement of DOE early on enhances success of contractor document development (DOE and contractor)
- Need additional qualified safety basis review team members (DOE)
- Inconsistent interpretation of DOE standards across DOE (DOE)

Best practices for enhancing the capability and Improve of nuclear safety analysis personnel

- Use of experienced support contractors for AB document reviews and to mentor Federal staff—need availability of experts in the Field for specialized reviews— we can use support contractors (DOE)
- Technical references on-line for use by DOE reviewers (DOE)
- Recommend additional demonstration of product review and analysis as part of qualification training (DOE)

Identify Opportunities for Improvement In the area of capabilities and qualifications of nuclear safety analysis personnel

- Lack of complex wide tests for Nuclear Safety specialist qualification standard (DOE)
- Many qualified staff approaching retirement with few new staff coming into the system (DOE and contractor)
- Centralized/complex wide training would reduce training costs and ensure consistency of training (DOE)—note very little funds are set aside for training

DUTIES AND RESPONSIBILITIES

The following are the typical duties and responsibilities expected of personnel assigned to the Nuclear Safety Specialist Functional Area:

1. Oversee implementation of nuclear safety requirements and programs including:
 - Participate in the oversight of contractor implementation of the Nuclear Safety Management Rule (10 CFR 830 Subpart B) e.g., preparation, review and/or recommendation for approval of nuclear safety documents: Documented Safety Analysis, Technical Safety Requirements, Unreviewed Safety Questions, Safety Evaluation Reports, etc.
 - Evaluate implementation of Integrated Safety Management as related to safety bases: identification surveillance and of safety structures, systems and components (SSC), safety-related Quality Assurance (e.g., calculation notes), selection and implementation of safety related standards, related nuclear safety management programs, etc.
 - Evaluate the nuclear safety of nuclear facilities and operations for Price-Anderson Amendment Act compliance, contract performance, operational readiness reviews, readiness assessments, and other periodic assessments. Participate in enforcement of Price-Anderson Amendments Act requirements.
 - Participate in nuclear facility design reviews, safety system status monitoring, etc.
 - Evaluate design and analysis uncertainties with the functionalities of systems as described in the Documented Safety Analysis.
2. Communicate nuclear safety issues to DOE and contractor management and other stakeholders and assist in the resolution these issues.
3. Participate in the development, review, approval and interpretation of Nuclear Safety Rules, orders, policies, standards, guides and documents.
4. Participate in DOE self-assessments in the area of nuclear safety.
5. Participate in nuclear facility accident/incident investigations.
6. Participate in emergency response activities.
7. Maintain and increase professional knowledge and expertise related to the field of nuclear safety.