

U.S. DEPARTMENT OF ENERGY

OAK RIDGE OPERATIONS



**Safety Basis
Office/Facility-Specific
Qualification Standard
Revision 1**

July 2004

CONCURRENCE AND APPROVAL

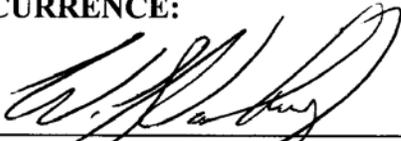
The Department of Energy (DOE) Oak Ridge Operations (ORO) Training and Development Group (TDG) is the sponsor for this Safety Basis Office/Facility-Specific Qualification Standard. The TDG management team, with subject matter assistance from the offices of Assistant Manager for Environment, Safety, Health, and Emergency Management; Assistant Manager for Environmental Management; Assistant Manager for Laboratories; Assistant Manager for Assets Utilization; and Nuclear Fuel Security and Uranium Technology, is responsible for reviewing the qualification standard to ensure that the technical content is accurate and adequate for its intended application and for ensuring that the qualification standard is maintained current.

The TDG Team Leader coordinates implementation of the Technical Qualification Program (TQP) and assists line managers in the development of ORO office/facility-specific qualification standards. The TDG Team Leader's concurrence with this qualification standard is indicated by his signature below. Local and DOE-wide implementation of the TQP is overseen by the Federal Technical Capability Program (FTCP) Panel. ORO's agent to the DOE FTCP Panel also concurs with this standard, as indicated by his signature below.

The approval of this qualification standard is indicated by the ORO Deputy Manager for Operations' signature below.

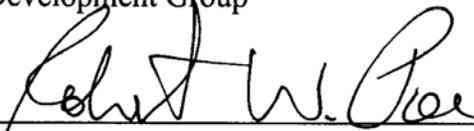
Revision 1 removes the Safety Basis Competency by ORO Position Matrix from this document (the most current version is posted on the ORO Training and Development Group Web site at <http://www.ornl.gov/tdd/tddhome.htm>); eliminates the exclusion of the use of equivalencies to fulfill the competencies; specifies continuing training for safety basis experts and for those persons requiring familiarity- and working-level competencies, reflects recent changes to ORO O 420, Chapter XIII; and replaces discontinued DOE standards on the list of applicable safety basis documents.

CONCURRENCE:



Dr. William J. (Jim) Vosburg, Team Leader, Training and Development Group

7-23-04
Date



Robert Poe, ORO Agent to the DOE FTCP Panel

7/29/04
Date

APPROVAL:



Gerald Boyd, ORO Manager

7/29/04
Date

DOE Oak Ridge Operations Safety Basis Office/Facility-Specific Qualification Standard - Revision 1

Introduction

The Safety Basis Office/Facility-Specific Qualification Standard is part of the Technical Qualification Program (TQP) required by DOE M 360.1-1B, *Federal Employee Training Manual*, and supplements the department-wide General Technical Base, functional area qualification standards, and any other organizational qualification standard. It contains the competency requirements that ORO staff in positions with safety basis responsibilities need to fulfill in order to perform assigned safety basis activities. Documented satisfactory completion of the competencies contained in this qualification standard ensures that these individuals are qualified to carry out their duties and responsibilities.

In April 2002, ORO conducted a safety basis training needs analysis that resulted in

- a list of nine safety basis competencies (and supporting knowledge and skills) that form the foundation for an ORO office/facility-specific (OFS) safety basis qualification standard
- a matrix of safety basis positions by required competencies
- a competency-to-training matrix that identifies the ORO-specific courses and activities that can be used to fulfill the safety basis competencies.

The list of safety basis competencies was incorporated into the initial version of the OFS qualification standard and remains in this current revision. Each of the competency statements is supported by knowledge and skill statements that further amplify and describe the competency. These supporting knowledge and skill statements are not additional requirements but are suggested learning activities to assist in the fulfillment of the competency.

These office-specific competencies are assigned to each of the ORO positions with safety basis responsibilities and are listed in the Safety Basis Competency by ORO Position Matrix, which is available at the TDG web site (<http://www.ora.gov/tdd/tddhome.htm>). Individuals in these safety basis positions are expected to add these safety basis competencies to their individual development plans or technical qualification programs.

By July 2003, ORO staff in safety basis positions had fulfilled their assigned competencies by completing the required training and/or documenting their applicable equivalent experience.

The format of this standard is consistent with the department-wide functional area qualification standards developed by the DOE FTCP Panel. The nine safety basis competencies are organized by specificity of application into three overlapping groups. Within each group are three levels indicating the depth and breadth of the knowledge or skill. The following levels reflect the definitions provided in the TQP.

- **Familiarity level knowledge** is that basic knowledge of, or exposure to, the subject or process adequate to discuss the subject or process with individuals of greater knowledge.

- **Working level knowledge** is that knowledge required to monitor and assess operations or activities, to apply standards of acceptable performance, and to reference appropriate materials and/or expert advice as required to ensure the safety of Departmental activities.
- **Expert level knowledge** is that comprehensive, intensive knowledge of the subject or process sufficient to provide advice in the absence of procedural guidance.

Completion of Competencies

This qualification standard contains the safety basis competencies that have been assigned to the specific positions having safety basis responsibilities (refer to the Safety Basis Competency by ORO Position Matrix). Each position is assigned three competencies, one from each group. This matrix is periodically updated and posted on the TDG Web site (<http://www.ornl.gov/tdd/tddhome.htm>).

Individuals who are new to the designated safety basis position or are newly enrolled in the TQP have 18 months to complete all of their qualification requirements, including the assigned safety basis competencies from this OFS qualification standard. The ORO TQP Manual provides the guidance necessary for completion of this qualification standard.

The typical method of accomplishing each competency is to complete the required training or activity listed in the approved competency-to-training matrix, or submit documentation of applicable equivalent experience. The Safety Basis Competency-to-Training Matrix is posted on the TDG web site.

The Competencies

Group I: Demonstrate knowledge of the safety basis process requirements.

The three competencies in this group share the same supporting knowledge and/or skills, but each competency is differentiated by the depth and breadth of the level of application. The Group I competencies relate to the rules, orders, standards, guides, and handbooks associated with the safety basis process.

- Competency 1. Demonstrate a familiarity level knowledge of purpose and intent of the safety basis requirements, as described in 10 CFR 830, Subpart B, and the related DOE orders, standards, and guides.**
- Competency 2. Demonstrate a working level knowledge of the general content of the safety basis requirements, as described in 10 CFR 830, Subpart B, and the related DOE orders, standards, and guides.**

Competency 3. Demonstrate an expert level knowledge of the detailed content of the safety basis requirements, as described in 10 CFR 830, Subpart B, and the related DOE orders, standards, and guides.

Supporting knowledge and/or skills:

- a. Discuss the purpose and objectives of the nuclear facility safety basis program.
- b. Discuss each of the following nuclear safety rules, orders, standards, guides, and handbooks:
 - 10 CFR 830, *Nuclear Safety Management*, Subpart B, “Safety Basis Requirements”
 - DOE O 420.1A, *Facility Safety*
 - DOE G 420.1-1, *Nonreactor Nuclear Safety Design Criteria And Explosives Safety Criteria Guide for use with DOE O 420.1, Facility Safety*
 - DOE G 420.1-2, *Guide for the Mitigation of Natural Phenomena Hazards for DOE Nuclear Facilities and Non-Nuclear Facilities*
 - DOE G 421.1-2, *Implementation Guide For Use in Developing Documented Safety Analyses to Meet Subpart B of 10 CFR 830*
 - DOE G 423.1-1, *Implementation Guide For Use In Developing Technical Safety Requirements*
 - DOE G 424.1-1, *Implementation Guide For Use In Addressing Unreviewed Safety Question Requirements*
 - DOE O 425.1C, *Startup and Restart of Nuclear Facilities*
 - DOE O 460.1B, *Packaging and Transportation Safety*
 - DOE G 460.1-1, *Implementation Guide for Use with DOE O 460.1A, Packaging and Transportation Safety*
 - DOE-STD-1020-2002, *Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities*
 - DOE-STD-1021-93, Change Notice No. 1, *Natural Phenomena Hazards Performance Categorization Guidelines for Structures, Systems, and Components*
 - DOE-STD-1022-94, Change Notice No. 1, *Natural Phenomena Hazards Characterization Criteria*
 - DOE-STD-1027-92, Change Notice No. 1, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*
 - DOE-STD-1083-95, *Requesting and Granting Exemptions to Nuclear Safety Rules*
 - DOE-STD-1104-96, Change Notice No. 1, *Review and Approval of Nuclear Facility Safety Basis Documents (Documented Safety Analyses and Technical Safety Requirements)*
 - DOE-STD-1120-98, *Integration of Environment, Safety, and Health into Facility Disposition Activities*, Volumes 1 and 2
 - DOE-STD-3009-94, Change Notice No. 2, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*
 - DOE-HDBK-3010-94, *Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities*, Volumes 1 and 2
 - DOE-STD-3011-2002, *Guidance for Preparation of Basis for Interim Operations (BIO) Documents*

- DOE-STD-3014-96, *Accident Analysis for Aircraft Crash into Hazardous Facilities*
- c. Discuss the development and maintenance of the requirements described in 10 CFR 830, Subpart B, "Safety Basis Requirements," for DOE and contractors authorized to operate nuclear facilities.
- d. Discuss the following items:
- Authorization Agreements
 - Authorization Basis
 - Safety Basis
 - Unreviewed Safety Question (USQ)
 - Safety Evaluation Report
 - Documented Safety Analysis
 - Safe Harbor Methodologies
 - Preliminary Documented Safety Analysis
 - Technical Safety Requirements
 - Potential Inadequacies of the Safety Analysis (PISA)
- e. Discuss the hazard categorization levels, non-nuclear hazard classification levels, and the process utilized to determine the facility hazard category or classification.
- f. Discuss the reasons for performing a USQ determination.
- g. Discuss the responsibilities of DOE and contractors authorized to operate nuclear facilities for the performance of USQ evaluations.
- h. Discuss the actions to be taken by a contractor and DOE upon identifying information that indicates a potential inadequacy of the safety analysis.
- i. Discuss the actions to be taken by a contractor and DOE if it is determined that a USQ exists.

Group II: Demonstrate the ability to implement the safety basis process and have knowledge of the safety basis documents.

The three competencies in this group share the same supporting knowledge and/or skills, but each competency is differentiated by the depth and breadth of the level of application. The focus of this group is to demonstrate the knowledge of the facility-specific safety basis documents (e.g., documented safety analyses, technical safety requirements) for the assigned facilities; and how to apply these requirements in the preparation, review, approval, revision, and update of safety basis documents. This also includes the preparation, review, and approval of safety evaluation reports.

Competency 4. Demonstrate a familiarity level knowledge of the safety basis documents for assigned facilities and how they are prepared, reviewed, approved, and updated.

Competency 5. Demonstrate a working level knowledge of the safety basis documents for assigned facilities and how they are prepared, reviewed, approved, and updated.

Competency 6. Demonstrate an expert level knowledge of the safety basis documents for assigned facilities and how they are prepared, reviewed, approved, and updated.

Supporting knowledge and/or skills:

- a. Discuss the safety basis documents for the assigned facilities.
- b. Discuss the scope of operations, hazards, postulated accidents, and controls/requirements for the assigned facilities as documented in the safety basis documents.
- c. Discuss the safety basis documentation preparation, revision, and update processes and the associated responsibilities of the contractor and DOE.
- d. Discuss the review and approval processes for safety basis documents and the associated responsibilities of the contractor and DOE.
- e. Discuss the level of approval authority as it relates to Facility Hazard Categorization and Classification and safety basis documents.
- f. Discuss the steps in the preparation, review, and approval of a safety evaluation report.

Group III: Demonstrate knowledge of the assigned facility and the flow down of safety basis documents.

The three competencies in this group share the same supporting knowledge and/or skills, but each competency is differentiated by the depth and breadth of the level of application. The focus of these competencies is an understanding of the “field” knowledge of DOE’s and the contractor’s safety basis documents and their flow down to facility operations. This includes a knowledge of the assigned facilities, and can range from simply referring to a list of facilities containing basic information of each facility’s hazard categorization and classification, scope of operation, and major hazards involved to intimate field knowledge of a facility and its operations (by being involved in the day-to-day activities and issues of the facility). Group III competencies also entail the demonstration of an understanding of how controls and requirements from the safety basis document are flowed down to the facility’s operating procedures, processes, and programs.

Competency 7. Demonstrate a familiarity level knowledge of the assigned facilities and how the safety basis documents flow down to operating procedures, processes, and programs and how these flow downs are maintained through the change-control process.

Competency 8. Demonstrate a working level knowledge of the assigned facilities and the operating procedures, processes, and programs that flow down from the facility-specific safety basis documents and the change-control process for flow downs.

Competency 9. Demonstrate an expert level knowledge of the assigned facilities and the operating procedures, processes, and programs that flow down from the facility-specific safety basis documents and the change-control process for flow downs.

Supporting knowledge and/or skills:

- a. Discuss the scope of operations of the assigned facility.
- b. Discuss the nuclear and non-nuclear hazards of the assigned facility.
- c. Discuss the controls and requirements derived from the safety basis documents.
- d. Discuss the process for flow down of controls and requirements and the derived operating procedures, processes, and programs.
- e. Discuss the change-control process for operating procedures, processes, and programs.

Continuing Training and Proficiency Requirements

All safety basis personnel should maintain their proficiency in order to stay abreast of changes to safety basis rules, regulations, procedures and processes. Such training or proficiency-related activities include:

- Teach a safety basis-related course
- Lead a team in the preparation of a safety evaluation report
- Conduct a team walk-down of a contractor's safety or hazard analysis
- Complete an ORO-specific safety basis refresher course
- Complete a pre-approved self-instructional safety basis activity

In addition to the above, personnel with assigned expert-level safety basis responsibilities or competencies shall also complete refresher training in Unreviewed Safety Question Process every two years in order to maintain their proficiency in safety basis.

ORO management may also designate additional continuing training courses or activities based on overall organizational safety basis performance, changing technology, new requirements, or changes made to this qualification standard.