

**U.S. DEPARTMENT OF ENERGY**

**OAK RIDGE OPERATIONS**



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

**April 2002**

**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 Nuclear Safety Division and the Environmental Management organization, 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.

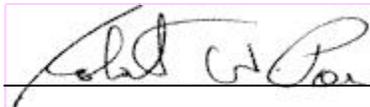
**CONCURRENCE:**



Dr. Jim Vosburg, Team Leader, Training and Development Group

5-1-02

Date

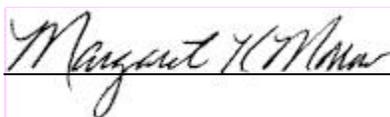


Robert Poe, ORO Agent to the DOE FTCP Panel

5/2/02

Date

**APPROVAL:**



Margaret Morrow, Deputy Manager for Operations

5-3-02

Date

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

### Purpose and Scope

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. These staff must also be enrolled in the TQP. 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 has been incorporated into this OFS qualification standard. Each of the competency statements is supported by knowledge and skill statements that further amplify and describe the competency. These supporting knowledge and skills are expected to be attained in order to fulfill the competency.

As indicated in the attached Safety Basis Competency by ORO Position Matrix, these office-specific competencies have been assigned to each of the ORO positions with safety basis responsibilities. Individuals in these safety basis positions will need to add these safety basis competencies to their technical qualification program.

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. These levels, defined below, 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 attached Safety Basis Competency by ORO Position Matrix). Each position is assigned three competencies, one from each group. This matrix will be periodically updated and posted on the TDG web site (<http://www.ornl.gov/tdd/tddhome.htm>).

As of May 31, 2002, each person holding one of the designated positions in the attached matrix will have one year to complete the required competencies. After this date, individuals who are new to the designated safety basis position and are newly enrolled in the TQP will have 18 months to complete all of their qualification requirements, including the assigned safety basis competencies from this OFS qualification standard.

Exemptions and equivalencies are not permitted for this Safety Basis Office/Facility-Specific Qualification Standard. However, due to the timing of the issuance of this standard, there are two exceptions. First, those individuals who attended the eight-hour ORO authorization basis course in December 2001 or the four-hour ORO authorization basis course in April 2002 may use these courses to fulfill the applicable competencies. Second, fully-qualified facility representatives may claim an equivalency for Competency 9.

The preferred method of accomplishing each competency is to attend the required training or complete the required activity listed in the approved competency-to-training matrix. This matrix is posted on the TDG web site.

Individuals who choose to complete each assigned competency independent of the preferred method, must submit their proposed plans of completion to the TDG for approval prior to starting the plan. Each plan must include a developmental activity for each supporting knowledge and skill, along with the name of the subject matter expert who will evaluate the activity. Once the plan is approved and implemented, the individuals' line managers are responsible for ensuring that the plans are completed according to schedule, and documented appropriately.

## 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 orders, standards, guides, and handbooks:
  - DOE O 420.1, *Facility Safety*
  - 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 425.1B, *Startup and Restart of Nuclear Facilities*
  - DOE O 460.1, *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, *Natural Phenomena Hazards Performance Categorization Guidelines for Structures, Systems, and Components*
  - DOE-STD-1022-94, *Natural Phenomena Hazards Characterization Criteria*
  - DOE-STD-1027-92, *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, *Review and Approval of Nonreactor Nuclear Facility Safety Analysis Reports*
  - DOE-STD-1120-98, *Integration of Environment, Safety, and Health into Facility Disposition Activities*, Volumes 1 and 2
  - DOE-STD-3009-94, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Safety Analysis Reports*
  - DOE-HDBK-3010-94, *Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities*
  - DOE-STD-3011-94, *Guidance for Preparation of DOE 5480.22 (TSR) and DOE 5480.23 (SAR) Implementation Plans*
  - DOE-EM-STD-5502-94, *Hazard Baseline Documentation*.
- 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, safety analysis reports, basis for interim operations, 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**

Personnel with assigned safety basis responsibilities shall complete an annual safety basis refresher training course as part of their continuing training, and 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.

<b>Safety Basis Competencies by ORO Position</b>	
<b>Position</b>	<b>Required Competencies</b>
Manager (M-1)	1, 4, 7
Deputy Manager (M-2)	1, 4, 7
Deputy for Operations (M-2)	1, 5, 7
Assistant Manager for Environmental Management (AMEM)	1, 5, 7
Deputy Assistant Manager for Environmental Management	1, 5, 7
Assistant Manager for Environment, Safety, Health, and Emergency Management (AMESH)	1, 5, 7
Assistant Manager for Assets Utilization (AMAU)	2, 5, 7
Assistant Manager for Laboratories (AML)	2, 5, 7
Director of Nuclear Fuel Security and Uranium Technology (NU)	2, 5, 7
AMAU, AML, and NU Division Directors Team Leaders	2, 5, 7
EM Line Managers: Division Directors	2, 5, 7
Site Managers	2, 5, 7
Group Leaders	2, 5, 7
Branch Chiefs	2, 5, 7
Team Leaders	2, 5, 7
AMESH Line Managers: Division Directors	2, 5, 7
Team Leaders	2, 5, 7
Facility Representatives, including Transportation	2, 5, 9
Subject Matter Experts: Criticality Safety	2, 5, 7
Fire Protection	2, 5, 7

<b>Safety Basis Competencies by ORO Position</b>	
<b>Position</b>	<b>Required Competencies</b>
Emergency Management	2, 5, 7
Other (e.g., IH, IS, RP, EP)	1, 4, 7
SER Preparers: NSD	3, 6, 8
EM	3, 6, 8
EM Project and Program Managers	2, 5, 8
Transportation Experts: NSD	3, 6, 8
EM	3, 6, 8