

U. S. DEPARTMENT OF ENERGY
OAK RIDGE OPERATIONS OFFICE



**OFFICE OF NUCLEAR FUEL SECURITY
AND URANIUM TECHNOLOGY**

**OFFICE/FACILITY-SPECIFIC
QUALIFICATION STANDARD**

**April 2003
Revision 0**

CONCURRENCE AND APPROVAL

The Department of Energy (DOE) Oak Ridge Operations Office (ORO) Office of Nuclear Fuel Security and Uranium Technology (ONFS&UT) is the sponsor for this ONFS&UT Office/Facility-Specific Qualification Standard. The ONFS&UT management team 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. Concurrence with this qualification standard by the ONFS&UT management team is indicated by the signatures below.

The Training and Development Group (TDG) Leader coordinates implementation of the technical qualification program and assists line managers in the development of ORO office/facility-specific qualification standards. Concurrence with this qualification standard by the TDG Leader is indicated by signature below.

The ORO ONFS&UT is the approval authority for this qualification standard.

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ORO OFFICE OF NUCLEAR FUEL SECURITY AND URANIUM TECHNOLOGY OFFICE/FACILITY-SPECIFIC QUALIFICATION STANDARD

Purpose

This standard is required by the DOE regulation, DOE M 360.1-B, *Federal Employee Training Manual*, as part of the Technical Qualification Program (TQP) and supplements the department-wide General Technical Base and Functional Area Qualification Standards. It contains the competency requirements that Office of Nuclear Fuel Security and Uranium Technology (ONFS&UT) staff assigned to the TQP need (as a composite) in order to perform assigned activities.

Each of the competency statements is followed by a list of supporting knowledge and skill statements that further amplify and describe the intent of the competency. The supporting knowledge and skill statements are not additional requirements and all do not necessarily have to be fulfilled to meet the intent of the competency.

Implementation

The various competencies identify knowledge requirements at either a familiarity level, or a working level. These levels are defined as follows:

Familiarity level is defined as basic knowledge of or exposure to, the subject or process adequate to discuss the subject or process with individuals of greater knowledge.

Working level is defined as the knowledge required to monitor and assess operations/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.

Demonstrate the ability is defined as actual performance of a task or activity in accordance with policy, procedures, guidelines, or accepted industry or Department practices.

TQP participants input, track, and report on technical qualification competency information through DOE's web-based Employee Self Service (ESS) program. The reports are sent to ORO's Training and Development Group (TDG) for input into a centralized database.

Participants should read the ORO TQP Manual prior to selecting applicable qualification standards and inputting information in ESS. The TQP Manual and other TQP resources are available through the TDG web site at <http://www.ora.gov/tdd/QualPrgm/qualprgm.htm>.

Completion of Competencies

Exemptions to the requirements of the listed subject areas are not to be used in this phase of the TQP. The competencies listed in this standard represent a core of knowledge and skills necessary for qualification and must be verified in some manner.

Equivalencies may be granted for individual competencies based upon an objective evaluation of the employee's prior education, training, and experience. Documentation of equivalencies must be provided which indicates how these requirements were met. The supporting knowledge and skill statements should be considered when evaluating an employee's ability with respect to each competency requirement.

For further explanation of exemptions and equivalencies, see the TQP Manual.

Verifying and documenting that the competencies have been met may be accomplished by the ONFS&UT management, or by a subject matter expert (SME) designated by it. The evaluation must be documented (evaluator notes, certificates of course completion, test reports, etc.); the supervisor's signature on a hard copy of the TQR document is necessary to show completion of the competency.

Any of the following methods may be used to fulfill the initial participant's competencies.

- Formal education (college courses and academic degrees)
- Training (DOE, DOE contractor, other agency, outside vendor)
- DOE experience or on-the-job training
- Equivalencies for prior experience, education, and training
- Documented oral evaluation
- Documented observation of performance
- Written examination (including test out)

Developmental Activity is required for those competencies where the knowledge and skill level is insufficient for conducting related job tasks. A developmental activity such as a training class, self study, or on-the-job training must be identified, approved, and completed. An evaluation of competency must be conducted and documented by the supervisor or a qualifying official to receive credit for meeting that competency.

Continuing Training and Proficiency Requirements

Requalification on the competencies contained in this qualification standard is not required. ONFS&UT staff should participate in continuing learning activities in order to maintain and improve previously acquired knowledge and skills and to acquire new knowledge and skills where necessary. Continuing training and education to maintain technical proficiency includes the following elements:

- Technical education and/or training on topics directly related to ONFS&UT duties and responsibilities.
- Training on topics that address an individual's knowledge and/or skill deficiencies.
- Training in areas added to the qualification standard since initial qualification.

Competencies added to the qualification standard are documented in the Technical Qualification Record and are addressed like other qualification standard competencies. Specific continuing training or education needs should be documented in Individual Development Plans.

COMPETENCIES

1. **ONFS&UT personnel shall demonstrate a familiarity level knowledge of the following DOE Directives, federal and international regulations associated with transportation of hazardous materials:**

- DOE Order 460.1A, Packaging and Transportation Safety
- DOE Order 460.2, Departmental Materials Transportation and Packaging
- DOE Order 461.1, Defense Programs Packaging and Transportation
- DOE Order 414.1A, Quality Assurance
- 49CFR Parts 100-180
- 10CFR Parts 71&73
- IAEA, International Atomic Energy Agency, "Regulations for the Safety Transport of Radioactive Materials"

Supporting Knowledge and Skills

- a. Describe how the above documents apply to the transportation and operations within DOE its sub-contractors and its facilities.
- b. Describe the hazardous classification of the material being shipped.
- c. Describe the proper packaging for the material being shipped.
- d. Describe the appropriate markings for the package being shipped.
- e. Describe the appropriate placards for the conveyance.
- f. Describe the appropriate emergency response information that is required.
- g. Describe when the following labels are applicable: empty label, radioactive white I, radioactive yellow II and radioactive yellow III.
- h. Describe the radiation level limitations as defined by DOT.
- i. Describe the contamination control requirements as defined by DOT.

2. ONFS&UT personnel shall demonstrate a familiarity level knowledge of performance-based incentives for contractors and site office operations.

Supporting Knowledge and Skills

- a. Describe the differences among performance objectives, measures, and expectations.
- b. Describe the key elements in the development and administration of performance-based requirements, objectives, measures and incentives used in performance-based award fee contracts.
- c. Describe the key elements in DEAR 970.1001, Appendix B, "Performance-Based Contracting Guide."
- d. Describe the key elements in DOE G 120.1-5, *Guidelines for Performance Management*.

3. ONFS&UT personnel shall demonstrate a familiarity level knowledge of NRC and DOE regulations affecting the Paducah and Portsmouth sites.

Supporting Knowledge and Skills

- a. Discuss the purpose and key elements of 10 CFR Part 76:
 - i. A, General Provisions
 - ii. B, Application
 - iii. C, Certification
 - iv. D, Safety
 - v. E, Safeguards and Security
 - vi. F, Reports and Inspections
- b. Briefly describe the criteria used to determine when Federal, state, and local laws and regulations are applicable.
- c. Explain the purpose and key elements of the regulations applicable to the health and safety issues in your area(s) of expertise.

4. ONFS&UT personnel shall demonstrate a familiarity level knowledge of the lease agreement between DOE and USEC.

Supporting Knowledge and Skills

Describe the major provisions of the Lease Agreement between the United States Department of Energy and the United States Enrichment Corporation.

5. ONFS&UT personnel shall demonstrate a familiarity level of Nuclear Criticality Safety.

- Non-nuclear hazardous material
- USEC safety issues

Supporting Knowledge and Skills

- a. Describe the attributes of a Nuclear Criticality Safety (NCS) program, including procedural controls and requirements for criticality accident alarm systems.
- b. Explain how operations comply with applicable regulations, Work Smart Standards, industry standards, and authorization basis documents.
- c. Explain how a NCS program ensures employee, public, and environmental safety.

6. ONFS&UT personnel shall demonstrate the ability to manage ORO projects and programs.

Supporting Knowledge and Skills

- a. Discuss/demonstrate knowledge of project management principles and best practices based on current and/or past project management experience.
- b. Summarize the content of DOE 0413.3, *Program and Project Management for the Acquisition of Capital Assets*.
- c. Describe the applicable project management responsibilities in DOE Order 430.1, *Life Cycle Asset Management*.

7. ONFS&UT personnel shall demonstrate a familiarity level knowledge of the gaseous diffusion process.

Supporting Knowledge and Skills

- a. Briefly explain the gaseous diffusion process used to create enriched uranium.
- b. Describe the environmental risks associated with the gaseous diffusion process.

8. ONFS&UT personnel shall demonstrate a working level knowledge of Safety Basis Requirements, as described in 10 CFR 830, Subpart B and 830 Safe Harbor Methodologies.

Supporting Knowledge and Skills

- a. Discuss the basic purposes and objectives of a Nuclear Facility Safety Basis.

- b. Describe the responsibilities of contractors authorized to operate nuclear facilities regarding the development and maintenance of 10 CFR 830, Subpart B, Safety Basis requirements.
- c. Define the following terms and discuss the purpose of each:
 - i. Authorization Agreements
 - ii. Authorization Basis
 - iii. Safety Basis
 - iv. Unreviewed Safety Question Determinations
 - v. Safety Evaluation Report
 - vi. Documented Safety Analysis
- d. Define the various Hazard Categorization levels and the general process utilized to determine the Facility Hazard Category.

9. ONFS&UT personnel shall demonstrate a familiarity level knowledge of surveillance and maintenance.

Supporting Knowledge and Skills

- a. Define surveillance as it pertains to DOE responsibilities for nuclear materials.
- b. Describe the Requirements-based Surveillance and Maintenance Review Process.
- c. Describe surveillance and maintenance activities conducted at the Portsmouth and Paducah sites.

10. ONFS&UT personnel shall demonstrate a familiarity level knowledge of the relationship between the DOE and state and local regulations and laws, including the Federal Facility Agreements (FFAs) for Portsmouth and Paducah Sites.

Supporting Knowledge and Skills

- a. Describe the relationship between DOE and state and local regulations and laws.
- b. Describe the major provisions of the FFA for the Paducah and Portsmouth Sites.

11. ONFS&UT personnel shall demonstrate a familiarity level knowledge of the Technical Safety Requirements as described in Department of Energy Order 5480.22, Technical Safety Requirements, with respect to its impact on Department nuclear safety.

Supporting Knowledge and Skills

- a. Discuss the purpose of Technical Safety Requirements.
- b. Describe the responsibilities of contractors authorized to operate defense nuclear facilities to comply with Technical Safety Requirements.

- c. Define the following terms and discuss the purpose of each:
 - Safety Limit
 - Limiting Control Settings
 - Limiting Conditions for Operation
 - Surveillance Requirements
- d. Discuss the requirements for administrative control of the Technical Safety Requirements.
- e. Discuss the requirements for emergency actions that depart from the approved Technical Safety Requirements.

12. ONFS&UT personnel shall demonstrate a familiarity level knowledge of Department of Energy Order 5480.23, Nuclear Safety Analysis Reports, with respect to its impact on Department nuclear safety.

Supporting Knowledge and Skills

- a. Discuss the four basic purposes of Nuclear Safety Analysis Reports.
- b. Describe the responsibilities of contractors authorized to operate defense nuclear facilities for the development and maintenance of a Nuclear Safety Analysis Report.
- c. Define the following terms and discuss the purpose of each:
 - Design Basis
 - Engineered Safety Features
 - Safety Analysis
- d. Describe the requirements for the scope and content of a Nuclear Safety Analysis Report.
- e. facilities and subsequent changes to the Report.
- f. Define who approves facility operations prior to achieving Safety Analysis Report upgrade approval.
- g. Discuss who approves temporary and permanent exemptions from the requirements of DOE Order 5480.23, Safety Analysis Reports.
- h. Discuss the requirements for the contractor to maintain the Safety Analysis Report current.

13. ONFS&UT personnel shall demonstrate a familiarity level knowledge of Department of Energy Order 5480.21, Unreviewed Safety Questions, with respect to its impact on Department nuclear safety.

Supporting Knowledge and Skills

- a. Discuss the reasons for performing an Unreviewed Safety Question determination.
- b. Define the following terms:
 - Accident analyses
 - Safety evaluation
 - Technical Safety Requirements
- c. Describe the situations for which a safety evaluation is required to be performed.
- d. Define the conditions for an Unreviewed Safety Question.
- e. Describe the responsibilities of contractors authorized to operate defense nuclear facilities for the performance of safety evaluations.
- f. Describe the actions to be taken by a contractor upon identifying information that indicates a potential inadequacy of previous safety analyses or, a possible reduction in the margin of safety as defined in the Technical Safety Requirements.
- g. Discuss the qualification and training requirements for personnel who perform safety evaluations.
- h. Discuss the actions to be taken if it is determined that an Unreviewed Safety Question is involved.

14. ONFS&UT personnel shall demonstrate a familiarity level knowledge of the facility maintenance management-related sections and/or requirements of the following related Department of Energy Orders:

- DOE Order 414.1, Quality Assurance
- DOE Order 420.1, Facility Safety
- DOE Order 440.1A, Worker Protection Management for DOE Federal and Contractor Employees

Supporting Knowledge and Skills

- a. Describe the purpose, scope, and application of the requirements detailed in the Orders above listed.
- b. Discuss the impact and/or relationship of the Orders listed above to the facility maintenance management functional area.

15. ONFS&UT personnel shall demonstrate a familiarity knowledge of the Price-Anderson Amendment Act of 1988 and its impact on Department of Energy criticality safety activities.

Supporting Knowledge and Skills

- a. Describe the purpose and scope of the Price-Anderson Amendment Act.
- b. Discuss the Act's applicability to the Department criticality safety activities.
- c. Discuss the civil and criminal penalties imposed on the Department, Management and Operating Contractors, and Subcontractors as the result of a violation of applicable rules and regulations related to criticality safety.