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February 2004

DOE STANDARD

TECHNICAL PROGRAM MANAGER FUNCTIONAL AREA QUALIFICATION STANDARD

DOE Defense Nuclear Facilities Technical Personnel

U.S. Department of Energy **AREA TRNG**
Washington, D.C. 20585

APPROVAL

The Federal Technical Capability Panel consists of senior U.S. Department of Energy managers responsible for overseeing the Federal Technical Capability Program. This Panel is responsible for reviewing and approving the Qualification Standard for Department-wide application. Approval of this Qualification Standard by the Federal Technical Capability Panel is indicated by signature below.

Roy J. Schepens
Chairman
Federal Technical Capability Panel

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TABLE OF CONTENTS

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ACKNOWLEDGMENT

The National Nuclear Security Administration (NNSA) Nevada Site Office (NSO) is the Sponsor for the Technical Program Manager (TPM) Qualification Standard. The Sponsor is responsible for coordinating the development and/or review of the Functional Area Qualification Standard by subject matter experts to ensure that the technical content of the standard is accurate and adequate for Department-wide application for those involved in the Technical Program Manager Program. The Sponsor, in coordination with the Federal Technical Capability Panel, is also responsible for ensuring that the Functional Area Qualification Standard is maintained current.

The following subject matter experts (SMEs) participated in the development and/or review of this Qualification Standard:

Stephen Mellington	NNSA Nevada Site Office (Team Leader)
Lisa Mueller	NNSA Nevada Site Office
Clayton Barrow	NNSA Nevada Site Office
Deborah Manning	NNSA Nevada Service Center
Craig West	Office of Training and Human Resource Department

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U.S. DEPARTMENT OF ENERGY
FUNCTIONAL AREA QUALIFICATION STANDARD

Technical Program Manager

PURPOSE

DOE M 426.1-1, Federal Technical Capability Manual, commits the Department to continuously strive for technical excellence. The Technical Qualification Program, along with the supporting Technical Qualification Standards, complements the personnel processes that support the Department's drive for technical excellence. In support of this goal, the competency requirements defined in the Technical Qualification Standards should be aligned with and integrated into the recruitment and staffing processes for technical positions. The Technical Qualification Standards should form the primary basis for developing vacancy announcements, qualification requirements, crediting plans, interviewing questions, and other criteria associated with the recruitment, selection, and internal placement of technical personnel. Office of Personnel Management minimum qualifications standards will be greatly enhanced by application of appropriate materials from the technical Functional Area Qualification Standards.

The Technical Qualification Standards are not intended to replace the U.S. Office of Personnel Management (OPM) Qualifications Standards nor other Departmental personnel standards, rules, plans, or processes. The primary purpose of the Technical Qualification Program is to ensure that employees have the requisite technical competency to support the mission of the Department. The Technical Qualification Program forms the basis for the development and assignment of DOE personnel responsible for ensuring the safe operation of defense nuclear facilities.

APPLICABILITY

The Technical Program Manager Functional Area Qualification Standard establishes common functional area competency requirements for Department of Energy personnel who provide assistance, direction, guidance, oversight, or evaluation of contractor technical activities that could impact the safe operation of DOE's defense nuclear facilities. The technical Functional Area Qualification Standard has been developed as a tool to assist DOE Program and Field office sin the development and implementation of the Technical Qualification Program in their organization. For ease of transportability of qualifications between DOE elements, Program and Field offices are expected to use this technical Functional Area Qualification Standard without modification or additions. Needed additional office/site/facility specific technical competencies should be handled separately. Satisfactory and documented attainment of the competency requirements contained in this technical Functional Area Qualification Standard ensures that personnel possess the requisite competence to fulfill their functional area duties and responsibilities. Office/Facility-Specific Qualification Standards supplement this technical Functional Area Qualification Standard and establish unique operational competency requirements at the Headquarters or Field element, site, or facility level.

IMPLEMENTATION

This technical Functional Area Qualification Standard identifies the minimum technical competency requirements for Department of Energy personnel. Although there are other competency requirements associated with the positions held by DOE personnel, this Functional Area Qualification Standard is limited to identifying the specific technical competencies. The competency statements define the expected knowledge and/or skill that an individual must meet. Each of the competency statements is further explained by a listing of supporting knowledge and/or skill statements.

The competencies identify a familiarity level, a working level, or an expert level of knowledge; or they require the individual to demonstrate the ability to perform a task or activity. 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.
>
> **Expert level** is defined as a comprehensive, intensive knowledge of the subject or process sufficient to provide advice in the absence of procedural guidance.
>
> **Demonstrate the ability** is defined as the actual performance of a task or activity in accordance with policy, procedures, guidelines, and/or accepted industry or Department practices.

Headquarters and Field elements shall establish a program and process to ensure that DOE personnel possess the competencies required of their position. That includes the competencies identified in this technical Functional Area Qualification Standard. Documentation of the completion of the requirements of the Standard shall be included in the employee's training and qualification record.

Equivalencies should be used sparingly with the utmost rigor and scrutiny to maintain the spirit and intent of the TQP. Equivalencies may be granted for individual competencies based upon objective evidence of previous education, training, certification, or experience. Objective evidence includes a combination of transcripts, certifications, and, in some cases, a knowledge sampling through a written and/or oral examination. Equivalencies shall be granted in accordance with the Technical Qualification Program Plan of the office qualifying the individual. The supporting knowledge and/or skill statements, while not requirements, should be considered before granting equivalency for a competency.

Training shall be provided to employees in the Technical Qualification Program who do not meet the competencies contained in the technical Functional Area Qualification Standard. Training may include, but is not limited to, formal classroom and computer based courses, self-study, mentoring, on-the-job training, and special assignments. Departmental training will be based upon appropriate supporting knowledge and/or skill statements similar to the ones listed for each of the competency statements. Headquarters and Field elements should use the supporting knowledge and/or skill statements as a basis for evaluating the content of any training used to provide individuals with the requisite knowledge and/or skill required to meet the technical Functional Area Qualification Standard competency statements.

EVALUATION REQUIREMENTS

Attainment of the competencies listed in this technical Functional Area Qualification Standard should be documented by a qualifying official, immediate supervisor, or the team leader of personnel in accordance with the Technical Qualification Program Plan of the office qualifying the individual.

CONTINUING EDUCATION, TRAINING, AND PROFICIENCY

DOE personnel shall participate in continuing education and training as necessary to improve their performance and proficiency and ensure that they stay up-to-date on changing technology and new requirements. This may include courses and/or training provided by:

- Department of Energy
- Other government agencies
- Outside vendors
- Educational institutions

Beyond formal classroom or computer-based courses, continuing training may include

- Self Study
- Attendance at symposia, seminars, exhibitions
- Special assignments
- On-the-job experience

A description of suggested learning proficiency activities and the requirements for the continuing education and training program for Safety Software Quality Assurance personnel are included in Appendix A of this document.

DUTIES AND RESPONSIBILITIES

The following are the typical duties and responsibilities expected of personnel assigned to the Technical Program Manager Functional Area:

1. Manage and coordinate activities associated with assigned programmatic responsibility.

2. Develop, review, and endorse budget requests to accomplish program goals and objectives.

3. Develop, review, and endorse program plans to support the accomplishment of mission objectives in a safe, efficient, and effective manner.

4. Continuously monitor and evaluate cost, schedule, and the completion of programmatic goals and milestones in accordance with approved plans.

5. Continuously monitor program activities in the field and ensure that the deliverables and outcomes associated with a program are technically adequate.

6. Prepare reports and make presentations to reflect overall program status, cost and funding issues, resource requirements, adherence to schedules and milestones, and other program issues.

7. Maintain effective communication with Headquarters, field elements, regulatory agencies, the public, and other stakeholders to accomplish program goals.

8. Ensure that safety is integrated into management and work practices to accomplish program objectives and ensure worker and public health and safety.

9. Ensure that related nuclear and environmental regulations and requirements are integrated into program plans and activities to protect personnel, the facility, and the environment.

10. Ensure that programs comply with Departmental Directives, Federal and State Regulations, and other binding agreements.

Position-specific duties and responsibilities for Technical Program Manager personnel are contained in their Office/Facility-Specific Qualification Standard or Position Description.

BACKGROUND AND EXPERIENCE

The U. S. Office of Personnel Management's Qualification Standards Handbook establishes minimum education, training, experience, or other relevant requirements applicable to a particular occupational series/grade level, as well as alternatives to meeting specified requirements.

The preferred education and experience for Technical Program Manager personnel are:

1. Education:

   Bachelor of Science degree in engineering, science, or a related discipline or meeting the alternative requirements specified for engineers, or scientists in the OPM Qualification Standards Handbook.

2. Experience:

   Industrial, military, federal, state or other directly related background that has provided specialized experience in Technical Program Management. Specialized experience can be demonstrated through possession of the competencies outlined in this Standard.

REQUIRED TECHNICAL COMPETENCIES

The competencies contained in this Standard are distinct from those competencies contained in the General Technical Base Qualification Standard. All Technical Program Manager personnel must satisfy the competency requirements of the General Technical Base Qualification Standard prior to or in parallel with the competency requirements contained in this Standard. Each of the competency statements defines the level of expected knowledge and or skill that an individual must posses to meet the intent of this Standard. The supporting knowledge and/or skill statements further describe the intent of the competency statements.

Note: When regulations or Department of Energy directives or other industry standards are referenced in the Qualification Standard, the most recent revision should be used.

GENERAL TECHNICAL

1. Technical Program Manager personnel shall have a working level knowledge of the roles and responsibilities for the Integrated Safety Management System and the Department's philosophy and approach to implementing integrated safety

management (ISM).

Supporting Knowledge and/or Skills

a. Describe the overall objective of the Department-wide Functions and Responsibilities Manual and the similar lower-tier organization-level manuals developed by Headquarters Offices and Field Elements.

b. Explain the objective of integrated safety management.

c. Describe how the seven Guiding Principles in the Integrated Safety Management Plan are used to implement an integrated safety management philosophy.

d. Describe the five core safety management functions in the Integrated Safety Management Plan and discuss how they provide the necessary structure for work activities.

e. Identify and discuss existing Department programs and initiatives that lead to successful implementation of integrated safety management such as:

- Standards/Requirements Identification Documents (S/RIDs) and Work Smart Standards;
- Contract reform and performance-based contracting;
- Research and development laboratory activities related to safety management;
- Operational Readiness Reviews (ORR);
- Nuclear Explosive Safety and Surety Program;
- Voluntary protection;
- ISO 14000; and
- Environmental laws and regulations.

f. Discuss the purpose, content, and application of DOE Policy 450.4, Safety Management System Policy.

g. Explain the basis upon which the safety management functions could differ from facility to facility, and the basis to be used for applying ISM on a graded approach.

h. Discuss the underlying safety management issues affecting the design, construction, operation, and maintenance of the Department's facilities, activities, and assets.

2. A Technical Program Manager shall have a working level knowledge of nuclear safety management standards and documentation including their application.

Supporting Knowledge and/or Skills

a. Discuss the purpose, content, and philosophy, as appropriate to the position, of the following safety management standards for nuclear facility safety authorization basis:

- DOE Guide 424.1-1, Implementation Guide for Use In Addressing Unreviewed Safety Question Requirements;
- DOE Order 420.1A, Facility Safety;
- DOE Order 425.1C, Startup and Restart of Nuclear Facilities;
- DOE-STD-1027-92, Guidance on Preliminary Hazard Classification and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports;

- DOE-STD-3006-2000, Planning and Conduct of Operational Readiness Reviews (ORR);
- DOE-STD-3009-94, Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports;
- DOE-STD-3011-2002, Guidance for Preparation of Basis for Interim Operations (BIO) Document; and
- DOE P 410.1A, Promulgating Nuclear Safety Requirements.

b. Discuss the purpose, content, and philosophy, as appropriate to the position, of the following safety management standards for nuclear explosive safety:

- DOE Order 452.1B, Nuclear Explosive and Weapon Surety;
- DOE Order 452.2B, Safety of Nuclear Explosive Operation;
- DOE Order 5610.13, Joint Department of Energy/Department of Defense; Nuclear Weapon System Safety, Security, and Control Activities; and
- DOE Order 5660.1B, Management of Nuclear Materials.

c. Describe the process for determining the applicable set of standards for operation such as Standards/Requirements Identification Documents (S/RIDs); and Work Smart Standards.

d. Discuss the application and implementation of the standards listed above in the development of site and facility safety management documents.

e. Identify the conditions and procedures used to maintain and modify safety documents.

3. A Technical Program Manager shall have a familiarity-level knowledge of DOE Order 231.1A, Environment, Safety, and Health Reporting, and DOE Manual 231.1-2 Occurrence Reporting and Processing of Operations Information.

Supporting Knowledge and/or Skills

a. State the purpose of the Order.

b. Define the following terms:

- Event;
- Condition;
- Facility;
- Notification Report;
- Occurrence Report; and
- Reportable Occurrence.

c. Discuss the Department’s policy regarding the reporting of occurrences as outlined in the Manual.

d. State the different categories of reportable occurrences and discuss each.

e. Discuss the Department's policy regarding the reporting of occurrences as outlined in DOE Order 231.1A, Environment, Safety, and Health Reporting, and DOE Manual 231.1-2 Occurrence Reporting and Processing of Operations Information.

4. A Technical Program Manager shall demonstrate a working level knowledge of 10 CFR 830.204, Documented Safety Analysis, with respect to its impact on Department nuclear safety.

Supporting Knowledge and/or Skills

a. Discuss the four basic purposes and objectives of Documented Safety Analysis.

b. Describe the responsibilities of contractors authorized to operate defense nuclear facilities for the development and maintenance of a Documented Safety Analysis.

c. Define the following terms and discuss the purpose of each:

- Design Basis;
- Engineering Safety Features;
- Safety Analysis;
- Safety Class;
- Safety Significant; and
- Defense in Depth.

d. Describe the requirements for the scope and content of a Documented Safety Analysis and discuss the general content of each of the required sections of the Analysis.

e. Discuss the approval requirements for the Documented Safety Analysis for new facilities and subsequent changes to the Analysis. Review and evaluate a chapter of Documented Safety Analysis. Discuss the approval requirements.

f. Define who approves facility operations prior to achieving Documented Safety Analysis upgrade approval.

g. Discuss the provisions for temporary and permanent exemptions from the requirements of DOE-STD-3009-94 (Change Notice No. 2, April 2002), Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports, and 10 CFR 830.204, Documented Safety Analysis.

h. Discuss the requirements for the contractor to maintain the Documented Safety Analysis current.

5. A Technical Program Manager shall demonstrate a working level knowledge to determine the existence of an unreviewed safety question (USQ) in accordance with 10 CFR 830.203, Unreviewed Safety Question Process.

Supporting Knowledge and/or Skills

a. Discuss the reasons for performing an USQ determination.

b. Define the following terms:

- Accident Analyses;
- Safety Evaluation; and
- Technical Safety Requirements.

c. Describe the situations in which a safety evaluation is required.

d. Define the conditions for an USQ.

e. Describe the responsibilities of contractors authorized to operate DOE nuclear facilities for safety evaluations.

f. Describe the actions to be taken by a contractor upon identifying information that indicates a potential inadequacy of a previous safety analyses or a possible reduction in the margin of safety as defined in the Technical Safety Requirements.

g. Discuss the actions to be taken if it is determined that an USQ is involved. Given a hypothetical situation, develop an USQ for review and evaluation.

h. Discuss the qualification and training requirements for personnel who perform safety evaluations.

6. A Technical Program Manager shall demonstrate the ability to trend and analyze safety-related performance data.

Supporting Knowledge and/or Skills

a. Discuss the key processes used in the trending and analysis of performance information.

b. Discuss the key process to develop and implement metrics and performance measures, validate performance against metrics and performance measures, and trend/analyze data to establish a continuous improvement program.

c. Discuss the importance and key elements of the following:

- Maintenance history;
- Operational incident/occurrence report data;
- Security infractions;
- Safety incidents;
- Radiation exposure and incident reporting;
- Schedule variances; and
- Counterfeit and suspect parts.

d. Given an occurrence report, determine whether:

- Review process is adequate;
- Causes are appropriately defined;
- Corrective actions address causes;
- Lessons learned are appropriate; and
- Corrective actions are completed.

e. Given DOE Guide 231.1-1, Occurrence Reporting and Performance Analysis Guide, discuss key elements of this Guide and how they might be applied.

f. Given incident/occurrence report data for a specified period, analyze the information for contributing factors and safety trends.

7. A Technical Program Manager shall demonstrate a familiarity knowledge of the Price-Anderson Amendment Act (PAAA) of 1988 and its impact on Department of Energy activities.

Supporting Knowledge and/or Skills

a. Describe the purpose and scope of the PAAA.

b. Discuss the PAAA's applicability to the Department’s activities and the regulations

associated with its implementation.

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.

d. Discuss the general requirements associated with the topics below, as they are affected by the following rule-making aspects of PAAA:

- Occupational Radiation Safety;
- Safety Analysis Reports;
- Unreviewed Safety Questions;
- Quality Assurance Requirements;
- Conduct of Operations at DOE Nuclear Facilities;
- Technical Safety Requirements; and
- Occurrences at DOE Nuclear Facilities.

e. Describe the process for identifying a PAAA reportable noncompliance and explain which ones should be entered into the Noncompliance Tracking System (NTS).

8. A Technical Program Manager shall have a working level knowledge of formal configuration management as it relates to safety.

Supporting Knowledge and/or Skills

a. Using the guidance in DOE-STD-1073-2003, Configuration Management, DOE-STD-3024-98, Content of System Design Descriptions, and DOE Order 420.1A, Facility Safety, discuss the System Engineer concept as it applies to oversight of safety systems. Specifically address the areas of configuration management, assessment of system status and performance, and the technical support for operation and maintenance activities or for Documented Safety Analysis reviews.

b. Discuss the concept of configuration management and its importance in ensuring operational safety.

c. For the elements identified above, describe the possible effects on safe operations if they are ineffectively implemented.

d. Describe a typical configuration management process.

e. Given DOE-STD-1073-93, Guide for Configuration Management Programs, discuss the relationship between the Standard and the DOE Orders.

f. Discuss each of the following elements of configuration management and how they contribute to safety and an effective configuration management program.

- Program Management;
- Document Control;
- Change Control;
- Graded Approach;
- Design Requirements; and
- Assessments.

g. Discuss approved/recommended compensatory actions where inadequate configuration management exists and work is ongoing or to be initiated.

9. A Technical Program Manager shall have a working level knowledge of quality assurance policies, programs, and processes.

Supporting Knowledge and/or Skills

a. Describe the general requirements, purpose, interrelationships and importance of DOE Order 414.1A (Change 1), Quality Assurance, and 10 CFR 830.120 Subpart A, Quality Assurance.

b. Describe the Department of Energy's and the management and operating contractor's responsibilities and requirements for implementing a Quality Assurance Program (QAP).

c. Discuss the role of the Technical Program Manager with respect to DOE Order 414.1A (Change 1), Quality Assurance, and 10 CFR 830.120, Subpart A, Quality Assurance.

d. Discuss the process for obtaining an exemption to the above documents.

e. Describe the quality assurance criteria of DOE Order 414.1A, Quality Assurance, which address the following:

- Management;
- Performance; and
- Assessment.

f. Referring to DOE Guide 414.1-2, Quality Assurance Management System Guide for use with 10 CFR 830.120, Subpart A, Quality Assurance, and DOE O 414.1 discuss the implementation of an effective Quality Assurance Program (QAP). Conduct a QA assessment of an ongoing project or work activity, and then review the results with a qualified QA individual.

g. Discuss other relevant quality standards such as those from the American National Standards Institute (ANSI), American Society for Quality Control (ASQC), etc.

10. A Technical Program Manager shall have a working level knowledge of the Occupational Safety and Health Act (OSHA) requirements in the following documents:

- **DOE Guide 440.1-1, Worker Protection Management for DOE Federal and Contractor Employees – Guide for use with DOE O 440.1;**
- **29 CFR 1910, Occupational Safety and Health Standards; and**
- **29 CFR 1926, Safety and Health Regulations for Construction.**

Supporting Knowledge and/or Skills

a. Discuss the application and impact of OSHA on Department projects.

b. Identify the requirements in the OSHA that form the basis of authority for project management personnel in the oversight and management of a project.

c. Discuss the project manager responsibilities set forth in DOE O 440.1A, Worker Protection Management for DOE Federal and Contractor Employees.

d. Discuss the following construction contractor's responsibilities under DOE 440.1A, Worker Protection Management for DOE Federal and Contractor Employees:

- Establishing a safety program;
- Worksite presence during work activities; and
- Compliance by subcontractors.

e. Discuss the requirements for the performance of a hazard analysis and a hazard abatement/prevention program. Include in the discussion each of the following elements:

- Responsibility for implementation;
- Purpose and content of the hazard analysis; and
- Worker awareness of the hazards and hazard abatement/prevention.

f. Discuss the contractor's responsibility for providing necessary training to employees in the area of safety and health at the worksite.

g. Discuss the project manager's responsibility for on-site safety and health inspections.

h. Discuss the contractor's required response to an identified safety and/or health hazard.

11. A Technical Program Manager shall demonstrate a working level knowledge of hazardous waste and the development, review, and assessment of the following Resource Conservation and Recovery Act (RCRA) documentation:

- **Notice of Violation;**
- **RCRA Facility Investigation - Corrective Measures Study; and**
- **Consent Order and Settlement Agreement.**

Supporting Knowledge and/or Skills

a. Define the term "hazardous waste."

b. Using the decision tree in 40 CFR Part 260, relate RCRA solid waste to hazardous waste and identify the applicable RCRA regulations for each.

c. Identify the kinds of hazardous wastes generated within the Department and their sources.

d. Describe the combination of facilities used to manage hazardous wastes at a site.

e. Discuss the current methods of disposing of hazardous wastes.

f. Describe the process for developing the listed documents.

12. A Technical Program Manager shall demonstrate a familiarity level knowledge of the development, review, and assessment of the following National Environmental Policy Act (NEPA) documentation:

- **Environmental Impact Statement, EIS;**
- **Environmental Assessment, EA;**
- **Finding of No Significant Impact FONSI;**
- **Categorical Exclusion, CX; and**
- **Record of Decision, ROD.**

Supporting Knowledge and/or Skills

a. Describe the process for developing the listed documents.

b. Discuss the requirements for each document and describe the process for reviewing the listed documents.

13. A Technical Program Manager shall demonstrate a familiarity level knowledge of the purpose and requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Supporting Knowledge and/or Skills

a. Discuss the nine criteria set forth in 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan, concerning the performance of Cleanup Alternative Analysis.

b. Describe the requirements for public comment as they apply to the CERCLA activities.

c. Discuss the purpose and history of the CERCLA.

d. Discuss the relationship between the CERCLA and all other environmental regulations, especially the relationship between CERCLA and RCRA.

14. A Technical Program Manager shall demonstrate a working level knowledge of the management and negotiation of regulatory agreements and permits.

Supporting Knowledge and/or Skills

a. Describe the responsibilities involved with the management of the following documents:

- National Pollution Discharge Elimination System;
- Federal Facility Agreement;
- Consent Order and Settlement Agreements;
- ROD;
- RCRA permit parameters; and
- Grant conditions.

b. Discuss the requirements and methods of negotiation for the following documents:

- National Pollution Discharge Elimination System;
- Federal Facility Agreement;
- Consent Order and Settlement Agreements;
- ROD;
- RCRA permit parameters; and
- Grant conditions.

15. A Technical Program Manager shall have a working level knowledge of Project Risk Assessment.

Supporting Knowledge and/or Skills

a. Perform an assessment of project risks that identifies critical systems, subsystems, and other factors that require focused work and resolution.

b. Identify the types of risks that are addressed in a project risk assessment.

c. Evaluate the assessed level of risk.

d. Describe the basis for the risk assessment.

e. Identify the critical project elements that contribute to the risk.

f. Identify the consequences of the risk.

g. Identify activities and alternatives to minimize the risk.

h. Identify the stage(s) of the project in which the risk exists.

16. A Technical Program Manager shall have a working level knowledge of financial management practices and application of resources necessary to integrate and apply program resources to meet commitments as described in Department of Energy (DOE) Guide 430.1-1, Life Cycle Asset Management.

Supporting Knowledge and/or Skills

a. Define the term “Work Breakdown Structure” and discuss the process for developing one.

b. Define and compare the terms “cost estimate” and “budget.”

c. Describe the process for preparing cost estimates and budgets.

d. Define and explain the relationship between the following terms:

- Budgeted cost of work scheduled (BCWS);
- Budgeted cost of work performed (BCWP);
- Actual cost of work performed (ACWP); and
- Earned value (EV).

e. Describe and compare labor and non-labor costs necessary to integrate and apply program resources to meet commitments.

f. Describe and compare direct and indirect costs.

g. Discuss methods of reducing indirect costs.

h. Discuss the importance of determining the measure for work performed before work starts.

i. Explain what is meant by the term "baseline" as it relates to project management.

j. Describe the types of data required to forecast cost and schedule performance.

k. Describe methods for measuring work performed.

l. Discuss schedule and cost variance.

m. Describe the types of EV and how they are measured.

n. Define the term “estimate at completion” (EAC).

o. Define the term "Life Cycle Cost Estimate."

p. Given sample data, calculate "Life Cycle Cost Estimate."

q. Discuss the importance of formal change control with regard to project management.

r. Discuss the use of strategic planning, and how such planning relates to ongoing operations and safety of operations.

17. A Technical Program Manager shall demonstrate a working level knowledge of assessment techniques (such as the planning and use of observations, interviews, and document reviews) to assess facility performance, report results, and follow up on actions taken as the result of assessments.

Supporting Knowledge and/or Skills

a. Describe the role of mechanical system personnel in the oversight of Government Owned Contractor Operated facilities.

b. Describe the assessment requirements and limitations associated with a Technical Program Manager’s interface with contractor employees.

c. Explain the essential elements of a performance-based assessment, including the areas of investigation, fact-finding, and reporting. Include a discussion of the essential elements and processes of the following assessment activities:

- Exit interviews;
- Closure process;
- Tracking to closure;
- Follow-up; and
- Contractor corrective action implementation.

d. Describe the actions to be taken if the contractor challenges the assessment findings and explain how such challenges can be avoided.

18. A Technical Program Manager shall have a working level knowledge of technical contract management to assess contractor performance.

Supporting Knowledge and/or Skills

a. Identify the three major DOE contract types and describe the characteristics and the advantages and disadvantages of each.

b. Identify and discuss the types of contracting processes that are used to put major contracts in place.

c. Describe the "Accountability Rule" and discuss the role that it plays in contract management.

d. Discuss the following terms as they apply to financial accountability for the contractor:

- Incentives;
- Fines and penalties;
- Third-party liabilities;
- Loss of, or damage to, government property; and
- Allowable and non-allowable costs.

e. Discuss the technical oversight and qualifications required to assess contractor performance and the training of contractor employees.

f. Discuss the fee-based evaluation process including the development of performance criteria, conduct of the evaluation, and documentation and transmittal requirements for performance.

g. Identify who can make contractual requests or approvals of contract provisions, and the qualifications required of that individual(s).

h. Discuss the intent of the revised Department of Energy Acquisition Regulations (DEAR) clause regarding safety and the impact of contract reform on safety.

19. A Technical Program Manager shall demonstrate the ability to communicate (both oral and written) when working or interacting with the contractor, stakeholders, and other internal and external organizations.

Supporting Knowledge and/or Skills

a. Identify the various internal and external groups with whom Technical Program Manager personnel must interface with in the performance of their duties.

b. Apply written communication skills in the development of:

- Assessment reports;
- Technical reports; and
- Technical papers.

c. Apply effective and appropriate communications skills when providing specific work or task directions to contractors.

20. A Technical Program Manager shall have a familiarity level knowledge of the Occupational Radiation Protection requirements as contained in 10 CFR 835, Occupational Radiation Protection and the supporting Radiological Control Technical Standards and Guides.

Supporting Knowledge and/or Skills

a. Discuss the applicability of 10 CFR 835 to a DOE Activity.

b. Discuss the role of the Radiation Protection Program in a Site Safety Program.

c. Explain the concept of ALARA and how it applies to DOE activities.

d. Discuss the following concepts in radiation protection:

- Monitoring of individuals and areas;
- Entry control program;
- Posting and labeling;
- Records;
- Radiation safety training;
- Radioactive contamination control;
- Design and control;
- Sealed radioactive source control; and
- Emergency exposure situations.

e. Describe the basic concepts of DOE O 5400.5, Radioactive Protection of the Public and the Environment, and how it applies to the free release of radioactive materials or property.

21. A Technical Program Manager shall have a working level knowledge of problem identification, solving, and decision making techniques.

Supporting Knowledge and/or Skills

a. Describe the following five problem analysis techniques below and provide an example of their application to a recent problem or occurrence at your site:

- Root Cause Analysis;
- Causal Factor Analysis;
- Change Analysis;
- Barrier Analysis; and
- Management Oversight and Risk Tree Analysis.

b. Describe and explain the application of the following root cause analysis processes in the performance of occurrence investigations:

- Events and causal factors charting;
- Root cause coding; and
- Recommendation generation.

c. Describe the elements of an effective issue management system and its importance to safety.

d. Describe the following types of investigations and discuss an example of the application of each:

- Type A;
- Type B; and
- Type C.

e. Discuss the necessary considerations that must be addressed when developing a corrective action.

f. Discuss the immediate, short-term, and long-term actions taken as the result of a problem identification or an occurrence.

g. Given the data for an event, determine the root cause and develop corrective actions. Compare the results with that of the originator. Discuss any differences.

22. A Technical Program Manager shall have a familiarity level knowledge of the policies and procedures used to recruit, select, train, and qualify employees to establish and maintain technical competency.

Supporting Knowledge and/or Skills

a. As described in DOE Manual 426.1-1, Federal Technical Capability Manual, discuss planning, recruitment, and selection processes that can be used to acquire a technically competent workforce with the necessary knowledge, skills, abilities, and/or potential to accomplish the goals of the organization. Discuss the roles and responsibilities of the Federal Technical Capability Panel and Panel Agents in the recruitment, selection, training, and retention of technical personnel. Describe the following three types of mentoring relationships and discuss the types of goals that an organizationally sponsored mentoring program is intended to meet :

- Supervisor;
- Informal; and
- Structured-Facilitated.

b. Discuss the parameters of the Excepted Service Authority(ies), the circumstances which would dictate use of an Excepted Service Authority, and the process and procedures for using an Excepted Service Authority to recruit and hire.

c. Discuss ways to motivate, reward, recognize, and retain excellent employees or recognize a major contribution to the organization using local rewards programs or the programs described in the DOE Guide 426.1-1, Recruiting, Hiring and Retaining High-Quality Technical Staff.

d. Describe methods used to assess an employee's unique developmental needs and why providing developmental opportunities to employees could contribute to the achievement of organizational goals.

e. Describe in general the training and qualification requirements for contractors specified in DOE Order 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.

f. Participate in the oral examination or walk-through for a Facility Representative, Safety System Oversight, or other technical qualification.

23. A Technical Program Manager shall have a familiarity level knowledge of the employee concerns program as it relates to personnel and facility safety.

Supporting Knowledge and/or Skills

a. Describe the purpose, scope, and importance of the Department's Employee Concerns Program.

b. Describe the responsibilities of the following in implementing DOE Order 442.1A, Department of Energy Employee Concerns Program:

- Headquarters and Field Office Managers; and
- Employee Concerns Manager.

c. Describe how employee concerns are reported, processed and documented as stated in DOE O 442.1A and the DOE G 442.1-1.

d. Describe the criteria for designating and processing occupational health and safety concerns.

APPENDIX A
CONTINUING EDUCATION, TRAINING AND PROFICIENCY PROGRAM

The following list represents suggested continuing education, training and other opportunities that are available for DOE personnel after completion of the competency requirements in this technical Functional Area Qualification Standard. It is extremely important that personnel involved with this program maintain their proficiency through continuing education, training, reading, or other activities such as workshops, seminars, and conferences. The list of suggested activities was developed by the Subject Matter Experts involved in the development of the Functional Area Qualification Standard and is not all inclusive.

LIST OF CONTINUING EDUCATION, TRAINING AND OTHER ACTIVITIES

Technical Program Manager personnel shall participate in an office/facility-specific continuing training and qualification program that includes the following elements:

1. Continuing technical education and/or training covering topics directly related to the Technical Program Management area as determined appropriate by management. This may include courses/training provided by Department of Energy, other government agencies, outside vendors, or local educational institutions. Continuing training topics should also address identified weaknesses in the knowledge or skills of the individual personnel.

2. Actively perform the duties of a Technical Program Manager while managing all aspects of assigned programs.

3. Attend seminars, symposia, or technical meetings related to Technical Program Manager personnel.

4. Engage in self study of new regulations, requirements, or advances related to Technical Program Manager personnel.

5. Participation in practical exercises such as emergency or operational drills, simulations, or laboratory-type exercises.

6. Specific continuing training requirements shall be documented in Individual Development Plans.

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CONCLUDING MATERIAL

Review Activity:

EM
NNSA
EH
NE
SC

Preparing Activity:
DOE-EH-22

Project Number:
TRNG-0014

Field and Operations Offices:

CBFO
CH
ID
OH
OR
ORP
RFFO
RL
SR

Area and Site Offices:

Argonne Area Office
Brookhaven Area Office
Fermi Area Office
Kansas City Site Office
Livermore Site Office
Los Alamos Site Office
Nevada Site Office
Pantex Site Office
Princeton Area Office
Savannah River Site Office
Sandia Site Office
Y-12 Site Office