



Senior Technical Safety Manager

Qualification Standard *Reference Guide*

NOVEMBER 2001

Prepared by



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SYSTEMS
SOLUTIONS, Inc.

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PURPOSE

The purpose of this reference guide is to provide a document that contains the information required for a Department of Energy (DOE) technical employee to successfully complete the Senior Technical Safety Manager Functional Area Qualification Standard. In some cases, information essential to meeting the qualification requirements is provided. Some competency statements require extensive knowledge or skill development. Reproducing all the required information for those statements in this document is not practical. In those instances, references are included to guide the candidate to additional resources. Additional reference material is available in the Federal Technical Capability Manual, Chapter 5, Senior Technical Safety Manager Program <http://www.ornl.gov/tdd/QualPrgm/ftcp.htm>.

SCOPE

This reference guide has been developed to address the competency statements in the January 2000 edition of the DOE Functional Area, Qualification Standard for Senior Technical Safety Managers. Competency statements and “Supporting Knowledge and/or Skills” statements from the Qualification Standard are shown in contrasting bold type, while the corresponding information associated with each statement is provided below it. The Qualification Standard for Senior Technical Safety Managers contains 24 competency statements. This reference guide will address statements 2-24. Statement one requires the candidate to demonstrate communication skills and is not included in this guide.

Every effort has been made to provide the most current information and references available as of May 2001. However, the candidate is advised to verify the applicability of the information provided.

TECHNICAL COMPETENCIES

1. **Demonstration of communication skills not included in this reference guide.**
2. **A Senior Technical Safety Manager shall have a familiarity level knowledge of the employee concerns program as it related to personnel and facility safety.**
 - a) **Describe the purpose, scope, and importance of the Department's Employee Concerns Program**

The purpose of the Employee Concerns Program is to establish a process that ensures employee concerns related to such issues as the environment, safety, health, and management of DOE programs and facilities are addressed through:

- prompt identification, reporting, and resolution of employee concerns regarding DOE facilities or operations in a manner that provides the highest degree of safe operations;
- free and open expression of employee concerns that results in an independent, objective evaluation; and
- supplementation of existing processes with an independent avenue for reporting concerns.

The program applies to all DOE elements and contractors and is important because it ensures that employees can bring concerns to management without fear of retribution.

- b) **Describe the responsibilities of the following in implementing DOE O442.1, DOE Employee Concerns Program (ECP):**
 - **Headquarters and Field Office Managers**
 - **Employee Concerns Manager**

Field Office Managers

- Designate the management position or positions responsible for developing and implementing the ECP.
- Direct the ECP and provide adequate resources and training for effective implementation.
- Ensure implementation of ECPs required by contract for contractors under their jurisdiction
- Use management assessment results to verify the adequacy and implementation of the ECP and improve performance.

ECP Managers

- Develop and submit ECP program implementation documentation to the Secretarial Officer or field element manager, as appropriate, for approval.
- Implement the approved ECP and ensure concerns are processed as required by this Order.
- Publicize ECP processes, employee rights and responsibilities to report concerns through these processes, and management's intolerance for reprisals against employees who have reported concerns.

- Maintain an employee concerns tracking system and a secure filing system.
- Decide which concerns that are brought to the attention of the ECP, which concerns the ECP office should seek to resolve, which warrant referral or transfer to another office for further review, or which warrant no further action.
- Assist in evaluation and resolution of employee concerns.
- Transfer concerns to other programs or processes if the concern is deemed to be outside the scope of the ECP. Review and evaluate responses from other organizations to which concerns were referred, request further action when necessary, and provide feedback to those organizations that have a need to know about the outcome of the ECP process.
- Document that an individual, office, or organization has accepted responsibility for minimizing, correcting, and preventing recurrence of concerns that have been substantiated through the ECP process.
- Prepare quarterly and annual reports and review them for lessons learned and possible adverse trends.
- Use self-assessment or outside review to conduct management assessments of their ECPs. Assess the results with the Headquarters or field element manager, and take any necessary actions to improve program operations.
- Coordinate with DOE contracting officers to determine the existence of contract requirements for the establishment of contractor ECPs and the means and criteria by which such contractor ECPs will be evaluated.
- Advise appropriate levels of management when actions are either ineffective or not timely in resolving concerns or correcting identified deficiencies.

c) Describe how employee concerns are reported, processed and documented as stated in DOE O442.1 and the DOE G442.1.

Concerns Processing

Concerns must be processed in one of the following manners:

- Investigated or otherwise evaluated through the ECP, in coordination with DOE or external offices when required.
- Referred to other offices or programs and tracked by the ECP until they are resolved.
- Transferred to another DOE or contractor organization with jurisdiction over the issues, when those issues are outside the scope of the ECP.

Personnel from ECP must document employee concerns in sufficient detail to permit investigation or other appropriate levels of review. Concerns must be tracked until closure. Unless otherwise agreed to by the employee, an organization other than that of the employee's immediate supervisor must conduct the investigation. Similarly, individuals or organizations outside the concerned employee's organization should not be selected to conduct the investigation where their involvement presents a conflict of interest.

If the concerned employee requests confidentiality, his or her identity must not be disclosed during the investigation or other process used to evaluate the concern. However, ECP personnel should advise employees of the limitations of its ability to protect confidentiality under certain circumstances. ECP personnel must evaluate and attempt to resolve employee concerns in a manner that protects the health and safety of both employees and the public,

ensures effective and efficient operation of programs, and uses alternative dispute resolution techniques whenever appropriate. ECP personnel must immediately report to an appropriate line manager and/or the Environment, Safety and Health program office those concerns that involve an imminent danger or condition or a serious condition. Appropriate offices must determine if DOE or its contractors have taken action to minimize, correct, or prevent recurrence of program, process, or management weaknesses identified and substantiated through the ECP. Reports of concerns must be reviewed for classified information and, if classified, sanitized by an authorized classifier.

Closure.

An employee concern case is designated as closed when one of the following occurs.

- The concern has been investigated; necessary corrective actions have been identified; the office responsible for taking the corrective action has accepted jurisdiction over the matter; and the resolution has been documented in a formal tracking system.
- The concern has been investigated and no corrective action is deemed necessary.
- The subject matter of the concern is outside the scope of the ECP and the concern has been transferred to another organization with jurisdiction over the subject matter.
- Personnel from ECP have advised an employee raising a concern that is outside the scope of the ECP of available means to have the concern addressed, if direct transfer of the concern to another organization is not appropriate.
- The ECP determines that the issues are frivolous or too general to investigate.
- The concerned employee has been notified that the concern has been closed.

If the ECP does not resolve a concern to the satisfaction of the concerned employee, the concerned employee must be advised if there are any offices with authority or responsibility for addressing the subject matter of the concerns.

Documents and Records

At a minimum, the ECP office must prepare and maintain the following records:

- concern log,
- concern reports,
- concern investigation and resolution summaries, including a description of the basis for closing the concern,
- management assessment results, and
- quarterly and annual reports.

Personnel from ECP must submit quarterly and annual reports to the head of the field element and the Office of Employee Concerns. The reports must address the following:

- employee concerns activity levels for the period,
- nature of the concerns,
- resolution of the concerns, and
- other information required under ECP directives for the effective coordination of ECPs.

In maintaining ECP records, steps must be taken to protect the identity of the concerned employee consistent with the employee's request for confidentiality and the provisions of the Privacy Act and the Freedom of Information Act.

Federal records cannot be destroyed unless authorized by the Archivist of the United States, National Archives and Records Administration (NARA). Authorities are found in the General Records Schedule of the government, as issued by NARA, and in NARA-approved DOE records disposition schedules. Should any or all ECP records not be covered by authorized records disposition schedule, the responsible ECP manager must seek NARA authorization through the cognizant local records officer in liaison with the Departmental Records Officer.

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

Concerns are designated for processing according to the criteria established by the Office of Environment, Safety and Health (ES&H). An employee concern involving an imminent danger condition/concern or serious condition/concern will be immediately brought to the attention of the appropriate line manager and/or the ES&H program office for evaluation and action. The ECP must ensure that an initial determination of the health and safety significance of the concern is performed. Priorities for resolution must be established based on determination of the risk of the concern. Generic guidance for safety significance is provided below; however, for occupational safety and health concerns, additional classifications follow.

Imminent danger condition/concern

Any condition or practice in any workplace that creates a danger that could reasonably be expected to cause death or serious physical harm immediately or before the onset of the danger could be eliminated through the normal procedural mechanism. ES&H requires that such concerns be investigated within 24 hours.

Serious condition/concern

A hazard, violation, or condition that causes a substantial probability that death or serious physical harm, property loss, and/or environmental impact could result. ES&H requires that such concerns be investigated within three working days.

Other-than-serious condition/concern

Hazards, violations, or conditions that may not result in death or serious physical harm, property loss, and/or environmental impact but may have a direct and immediate relationship to worker safety and health or the environment. ES&H requires that such concerns be investigated within 20 working days.

The following ES&H guidelines are intended to be illustrative, not all-inclusive, of criteria that should be used to assess the significance of the concern. The degree to which a concern involves an imminent danger or condition is judged by determining if the concern involves any of the following criteria:

- Initiation of work in the face of identified environmental, safety, or health concerns that could result in an immediate or near-term threat to the safety or health of the public or workers.

- Continuation of operations in the face of inoperable or deficient environmental, safety, and health equipment, monitoring instrumentation, or systems.
- Violations of the Price-Anderson Amendments Act enforcement authority; criminal acts involving nuclear safety matters (e.g., falsification of facility logs and records); willful violations of regulations, DOE directives, operating procedures, or specifications; or other criminal acts.
- Deficiencies observed in the normal reporting system (e.g., lack of notification of environmental, safety, or health issues and events of significance to proper authorities as required by DOE Orders, procedures, or Federal and State environmental laws).
- Collection, dissemination, and recording of inaccurate or falsified environmental-, safety-, or health-related data.
- Material misrepresentations to inspectors, auditors, or reviewers when performing official duties.

3. A Senior Technical Safety Manager shall have a working level knowledge of the policies and procedures used to recruit, select, train, and qualify employees to establish and maintain technical competency.

- a) 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.**

Refer to DOE Order 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.

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

The excepted service authority found in Section 621(d) of the DOE Organization Act is available for hiring up to 200 high-quality individuals who may otherwise be difficult to attract and retain under current competitive service rules and procedures. Although primarily intended for scientific, engineering, and technical position, this authority may also be used for professional and administrative positions, and for positions in operations not related to defense nuclear facilities safety.

Further guidance on the appropriate use of excepted service authorities is available from your servicing personnel office or the Executive and Technical Resources Division at Headquarters. Actions to fill positions under these authorities are subject to reviews and approval by the Department's executive resources board.

- 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 Department's Administrative Flexibility's Handbook.**

There are a variety of monetary awards that you can use as tools to motivate, reward, or recognize technically excellent employees. A brief summary of some of the major monetary awards follows.

Special Act or Service Award

This is a monetary award granted to an employee or group of employees for a contribution or accomplishment in the public interest that is a nonrecurring contribution in or outside of established job responsibilities, a scientific achievement, or an act of heroism. Awards of up to \$7,500 per person may be approved by the head of the departmental element.

On-the-Spot Monetary Recognition Award

This is a monetary award granted to an employee or group of employees for performing tasks or assignments with exceptional and unanticipated speed and quality under difficult or unusual circumstances. Award amounts range from \$25-\$300 for an individual and

\$25-\$2,500 for a group. Awards may be approved by a supervisor or management official at least one level higher than the supervisor recommending the award.

Performance Management System Award

This award recognizes and rewards high-level performance based on an employee's current appraisal period rating of record for one full year. Each Department element establishes an award scale/method for these awards. Scales/methods may be uniform or variable, and may be expressed as a percentage of salary or as dollar amounts. All performance awards should be made in conjunction with the official responsible for making the performance appraisal decision and the official responsible for managing the performance award budget for the organization.

Quality Step Increase

This award may be granted to general schedule employees with a current rating at the highest level for continuing high-quality performance, usually extending over more than one rating period. Heads of Departmental elements have approval authority.

There are also non-monetary awards that may be used to recognize major contributions in support of the Department's missions and goals. A brief summary of some of the major non-monetary awards follows.

Time Off Award

Additional time off may be granted, with pay, in recognition of superior accomplishment or other personal efforts that contributes to the quality, efficiency, or economy of government operations. Full-time employees may be granted up to 40 hours of time off for any single contribution, and receive a maximum of 80 hours of time off per year. Supervisors may grant time off awards up to one workday. Time off awards of more than one workday require higher-level approval.

Exceptional Service Award

This bronze medal, rosette, and plaque may be granted for:

- outstanding service or an established record of achievement in the conduct or improvement of Department programs or operations;
- accomplishment of assigned responsibilities in an exemplary manner;
- the demonstration of unusual initiative in contributing to efficiency or improved management;
- outstanding executive or technical ability;
- unusual devotion to duty under adverse conditions; or for
- any other equally notable achievement deemed worthy of this level of recognition.

This award may be approved by the head of the Departmental element.

Non-monetary Superior Accomplishment Awards

Other non-monetary awards may be granted for superior accomplishment or assigned tasks to provide recognition for more exceptional accomplishments and creative endeavors that may result in significant benefits to the Department or the parent organization. These awards include the superior achievement award, award for achievement in equal employment opportunity and certificates of appreciation. Approval

levels for these awards are with the heads of the departmental elements and may, in some instances, be delegated to lower levels.

d) Discuss the role and responsibilities of the Federal Technical Capability Panel and Panel Agents in the recruitment, selection, training, and retention of technical personnel.

The Federal Technical Capability Panel is a group of senior line managers assigned by the Deputy Secretary to oversee the Federal Technical Capability Program and provide recommendations regarding the technical competence of DOE employees. The Panel is responsible for the following functions:

- Approving Technical Qualification Program components or elements that have DOE-wide implications.
- Concurring with the designation of Senior Technical Safety Manager positions.
- Reviewing Technical Qualification Program Plans to ensure that each office's plan is consistent with the objectives and requirements of the Federal Technical Capability Program.
- Periodically reviewing and assessing the effectiveness of the Technical Qualification Program.

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

The immediate supervisor must annually discuss training needs with each employee in regard to job requirements, including technical qualification standards, and the competencies needed to meet those requirements. Immediate supervisors must have this discussion with new and reassigned employees within 60 days of the person joining DOE or being reassigned.

Based on this discussion, each employee must have the opportunity to prepare an individual development plan that must be reviewed and revised, as appropriate, annually. Supervisors must ensure that all employees have an individual development plan, except where supervisors determine and record that individual development planning would result in little or no benefit to DOE because of an employee's position, expertise, career status, performance level, or personal circumstances.

The individual development plan describes reasonable and appropriate employee training objectives and activities.

f) Describe in general the training and qualification requirements for contractors specified in DOE Order 5480.2A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.

The operating contractor shall establish one or more organizations to be responsible for the training of operating organization personnel. This organization(s) shall be held accountable for providing facility line management with the support necessary to ensure that personnel in the operating organization are qualified to safely and effectively meet job requirements. The

responsibilities, qualifications, and authority of training organization personnel shall be documented, and managerial responsibilities and authority clearly defined.

Qualification is defined in terms of education, experience, training, examination, and any special requirements necessary for performance of assigned responsibilities. The requirements are based on industry standards and are intended to provide reasonable assurance that personnel at DOE nuclear facilities possess qualifications to operate and maintain the facility safely and reliably under all conditions.

Operating organizations shall define qualification requirements for personnel in each functional level. The relative importance of managerial and technical competence should be considered by management in establishing these requirements. Specific knowledge and skills differ for each level in the organization. At the higher functional level, managerial competence is the dominant need, whereas technical competence is the dominant need at other functional levels.

Although applied broadly to personnel in the operating organization, the term qualification has a different application for different positions. For example, managers and technical staff personnel may be considered qualified by virtue of meeting the entry-level requirements associated with the position and by completing applicable position-specific training. A comprehensive examination need not be administered to determine their qualification. Continuing training and professional development programs should be established to meet the needs of the individual and the position. Satisfactory performance of their assigned duties and assessment of individual performance such as that which is typically included in personal performance appraisals may be used to document continued satisfactory performance.

Technician and maintenance personnel qualification shall include demonstrated performance capabilities (performance demonstrations) to ascertain their ability to adequately perform assigned tasks. Written examinations should also be administered to personnel in these positions. However, a comprehensive final examination need not be administered to ascertain formal qualification of technicians and maintenance personnel (with the exception of radiological control technicians, who shall comply with the requirements of the DOE Radiological Control Manual). Participation in continuing training programs is required to maintain and improve their abilities to continue to function safely in the operating organization. Their continued satisfactory performance of assigned duties and their satisfactory participation in the continuing training program serves as sufficient evidence of maintenance of their qualification.

Qualification of operators and their immediate supervisors shall include examinations as applicable to the position. Written examinations and performance demonstrations shall be administered to qualified operators and supervisors. Written and oral examinations and operational evaluations shall be administered to certified operators and supervisors. Initial qualification/certification for a position shall include a comprehensive examination to ascertain the person's suitability to perform assigned duties. Participation in the continuing training program shall be required following initial qualification to the extent to which it applies to the position. Upon completion of the continuing training program requalification

may be achieved by either administering a comprehensive requalification examination, including any operational evaluations or performance demonstrations that may be specified, or by administering periodic examinations (e.g., quarterly) during the requalification cycle. Whether a comprehensive examination or periodic examinations are administered, after completing the continuing training program, the operating organization shall indicate by signature that the person has successfully completed the requalification program and is formally requalified.

Qualification may be granted only after assuring that all requirements have been satisfactorily completed.

Qualification of operators and their immediate supervisors in the operating organization is valid for a period not to exceed two years unless revoked for cause.

g) Describe the Federal Technical Capability Program as defined in the Federal Technical Capability Program Manual, and discuss that application of the program in your organization.

The Federal Technical Capability Program provides for the recruitment, deployment, development and retention of Federal personnel with the demonstrated technical capability to safely accomplish the Department's mission and responsibilities.

h) 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**
- **Structured-facilitated**

Supervisor

Serves as an effective coach/mentor. Provides continuous, honest, timely performance feedback to staff. Takes timely action to establish performance expectations; celebrates, recognizes, and/or rewards performance successes and accomplishments; deals with performance deficiencies.

Informal

A structured, but informal, agreement between two individuals outside the normal employee/supervisory relationship, wherein the mentor provides assistance to the participant (protege) in his/her career development planning process. Mentoring can provide valuable coaching and feedback regarding career plans and choices.

Structured-facilitated

The DOE offers structured programs that are designed to train and develop employees in specific disciplines. Some examples are:

- Individual Development Plans
- Acquisition Career Development Program
- Facility Representative Mentoring Program

4. A Senior Technical Safety Manager shall have a working level knowledge of the roles and responsibilities for the Integrated Safety Management System (ISMS) and the Department's philosophy and approach to implementing integrated Safety Management.

- 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.**

The purpose of the corporate-level and lower-tier documents is to ensure Department functions, responsibilities, and authorities for safety management are clearly defined.

- b) Give an example of a circumstance that might make it necessary or reasonable to deviate from the responsibilities and authorities identified in the Functions and Responsibilities Manual and describe the exemption process in DOE Manual 251.1, Directives System Manual.**

One example would be whenever a DOE official determines that a specific requirement(s) in a directive is not appropriate for an individual office or a facility under the responsibility of that office.

Exemption Process

Exemptions from DOE Orders, Notices, and Manuals are approved by the following:

- Heads of Departments
- For environment, safety and health requirements for Category 1 Hazard Nuclear Facilities, exemptions are approved by the Cognizant Secretarial Officer.

The Approving Official shall:

- provide notification of a proposed exemption approval to the Cognizant Secretarial Officer and the Office of Primary Interest at least 30 calendar days prior to final approval to ensure consistency with Departmental policy and identification of any significant concerns; and
- not issue a final approval granting an exemption unless (a) the Cognizant Secretarial Officer and the Office of Primary Interest concur with the proposed exemption decision or (b) the 30-calendar-day review period passes without objection or request for additional information from the Cognizant Secretarial Officer and the Office of Primary Interest.

Preparation of Exemption Requests. Requests for exemptions should address the following information, as appropriate:

- Site or facility for which an exemption is being requested.
- Reference to the requirements for which exemption is sought.
- Identification and justification of the acceptance of any additional risks that will be incurred if the exemption is granted.
- Benefits to be realized by providing the exemption.
- Indication of whether the exemption being requested is temporary or permanent, and for temporary exemptions, indication of when compliance will be achieved.

- Identification of other pertinent data or information used as a basis for obtaining an exemption.
- Requests for exemptions to environment, safety, and health requirements shall also address the following:
 - a) A description of any special circumstances that warrant the granting of an exemption, including whether 1) application of the requirement in the particular circumstances would conflict with another requirement; 2) application of the requirement in the particular circumstances would not achieve, or is not necessary to achieve, the underlying purpose of the requirement; 3) application of the requirement in the particular circumstances would not be justified by any safety and health benefit; 4) the exemption would result in a health and safety benefit that compensates for any detriment that would result from granting the exemption, or 5) there exists any other material circumstances not considered when the requirement was adopted for which it is in the public interest to grant an exemption.
 - b) Steps to be taken to provide adequate protection of health, safety, and the environment, and a statement that adequate protection will be provided.
 - c) A description of any alternative or mitigating actions that have or will be taken to ensure adequate safety, health, and protection of the public, the workers, and the environment for the period the exemption will be effective.

Approval Criteria. For all exemption decisions, the approving official may grant an exemption only if the exemption:

- is not prohibited by law;
- would not present an undue risk to public health and safety, the environment, or facility workers; and
- is warranted under the circumstances.

c) Explain the objective of ISM.

The objective of an ISM is to incorporate safety into management and work practices at all levels, addressing all types of work and all types of hazards to ensure safety for the workers, the public, and the environment.

d) Describe how the seven guiding principles in the ISM plan are used to implement an ISM philosophy.

These seven guiding principles are the fundamental policies that guide Department and contractor actions, from development of safety directives to performance of work.

Line Management Responsibility for Safety

Line management is directly responsible for the protection of the public, the workers, and the environment. As a complement to line management, the Department's Office of Environment, Safety and Health provides safety policy, enforcement, and independent oversight functions.

Clear Roles and Responsibilities

Clear and unambiguous lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels within the Department and its contractors.

Competence Commensurate with Responsibilities

Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.

Balanced Priorities

Resources shall be effectively allocated to address safety, programmatic, and operational considerations. Protecting the public, the workers, and the environment shall be a priority whenever activities are planned and performed.

Identification of Safety Standards and Requirements

Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established which, if properly implemented, will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.

Hazard Controls Tailored to Work Being Performed

Administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work being performed and associated hazards.

Operations Authorization

The conditions and requirements to be satisfied for operations to be initiated and conducted shall be clearly established and agreed-upon.

e) Describe the five core safety management functions

Define the Scope of Work

Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.

Analyze the Hazards

Hazards associated with the work are identified, analyzed and categorized.

Develop and Implement Hazard Controls

Applicable standards and requirements are identified and agreed-upon, controls to prevent/mitigate hazards are identified, the safety envelope is established, and controls are implemented.

Perform Work within Controls

Readiness is confirmed and work is performed safely.

Provide Feedback and Continuous Improvement

Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur.

- f) **Identify and discuss existing Department programs and initiatives that lead to successful implementation of ISM 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**
 - **Nuclear explosive safety and surety program**
 - **Enhanced work planning**
 - **Voluntary Protection Program**
 - **ISO 14000**

S/RIDS and work smart standards (WSS) define the site-wide mission and establish the controls at each organizational level. The ISM plan delineates the means by which these controls are established.

The contractor's ISM plan should establish processes for establishing performance objectives that include DOE budget execution guidance and direction and that incorporate the principles of performance-based contracting.

DOE line management determines if operational readiness reviews are required for startup of new nuclear facilities or restart of a nuclear. If an operational readiness review indicates that a programmatic functional area such as radiation protection is rigorously established, it may not be necessary to review this program in great depth during an ISM verification. This type of tailoring is used to prepare the ISM verification review plan.

Nuclear explosive safety rules significantly contribute to protecting workers, the public, and the environment from hazards resulting from nuclear detonation, high-explosive detonation and fire. These rules are integrated into the workplace through the ISM plan.

In developing an ISM plan, DOE and the contractor should consider approaches for worker involvement that have been defined as a part of the DOE Voluntary Protection Program (VPP), enhanced work planning (EWP), and behavior based safety. The EWP is an excellent tool for including the floor level workers in the ISM plan. The EWP is developed by a EWP team leader and an on-site facilitator working with senior management from the contractor and the DOE site office. The plan describes the activities that will be most helpful in achieving lasting improvement in performance.

More information on EWPs can be found on the EWP Web site at <http://tis-nt.eh.doe.gov/WPPHM/ewp/ewp2.htm>.

Additional information on VPPs may be found on the DOE EH web site at <http://tis-nt.eh.doe.gov/vpp/>

ISO 14000 is a standard the Department can use to integrate environmental controls into the ISM plan. This standard provides an overall framework for environmental management and integrates that framework with overall business management activity. It recognizes that all management systems must provide a defined and organized approach to relevant activities while also meeting production and quality requirements.

g) Discuss the purpose, content, and application of DOE P450.4, Safety Management System Policy.

The Safety Management System Policy provides a formal, organized process whereby people plan, perform, assess, and improve the safe conduct of work. The Safety Management System is institutionalized through DOE directives and contracts to establish the Department-wide safety management objective, guiding principles, and functions.

The safety management system consists of six components: 1) the objective, 2) guiding principles, 3) core functions, 4) mechanisms, 5) responsibilities, and 6) implementation. The objective, guiding principles, and core functions of safety management are used to implement safety management throughout the DOE complex.

h) 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.

The mission varies from facility to facility. Manufacturing to assembly, design to test, and so on. Each facility performs a different type of work. The safety management functions should be designed to accommodate the needs of the specific facility. The core functions of the ISM address this design. The scope of work performed in the facility is defined. The hazards associated with performing that work is then analyzed. Controls are then developed to reduce the potential for injury due to exposure to those hazards. Finally, work instructions are developed to ensure that work is performed within the controls established for that facility.

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

Safety mechanisms define how the core functions are performed. The mechanisms may vary from facility to facility and from activity to activity based on the hazards and the work being performed and may include: Departmental expectations expressed through directives (policy, rules, orders, notices, standards, and guidance) and contract clauses. Directives on identifying and analyzing hazards and performing safety analyses. Directives that establish processes to be used in setting safety standards. Contractor policies, procedures and documents established to implement safety management and fulfill commitments made to the Department.

5. A Senior Technical Safety Manager shall have a working level knowledge of the Department's various mechanisms for address technical staffing gaps and peak workload.

a) Discuss the benefits to the Department and individual organizational units that could be realized through use of the following:

- **Core Technical Group (CTG)**
- **EH Technical Assistance through the Office of Field Support**
- **Mentoring Program**
- **Special Assignment/Detail**

The DOE CTG has been established to support and supplement line management as needed for special issues or projects. This group consists of technical experts who may be used by DOE line organizations.

EH Technical Assistance through the Office of Field Support can assist in developing technical assistant plans for establishing enhanced work plan projects and demonstrations. This organization also conducts on-site analyses upon request.

The EH Mentoring Program provides onsite technical assistance through by providing safety and health experts to help resolve critical management and operations problems. Mentors work side by side with DOE operations and contractor personnel to identify and implement improvement in ES&H performance. Transferring knowledge and expertise to customers takes place through coaching, problem-solving sessions, and consultation on specific problems or issues.

Special assignment or details provide employees with opportunities to diversify their skills and increase their knowledge and enhance their abilities.

b) Describe the process to obtain technical assistance from the above groups/programs and the types of assets available.

Contact the CTG to obtain assistance. The coordinator for Defense Programs is Xavier Ascancio, (301) 903-5697, for environmental management call John Kaysak (202) 586-0108 or contact the CTG service desk at (888) 439-5883.

Technical assistance can be obtained from EH-51 by calling (301) 903-2075 or EH-53 (301) 903-3477.

The Mentoring Program is headed by the Director of the Office of Risk Analysis and Technology (EH-33), and the Deputy Director of the Mentoring Program (EH-33).

c) Describe the process for enrolling or participating in the above groups/programs.

To enroll or participate in any of the above programs contact the agency, division or individual listed above.

Mentor plans must be approved by the customer, the Operations Office, and the cognizant DOE Headquarters program office.

d) Describe the process for obtaining the technical assistance of an individual from another office on a temporary or detail basis.

This process varies from facility to facility. Check with your supervisor or the Human Resources Department at your location.

e) Describe other Departmental capabilities or resources that could be used to solve short-term technical safety issues.

This process varies from facility to facility. Check with your supervisor or the Human Resources Department at your location.

6. **A Senior Technical Safety Manager shall have a working level knowledge of nuclear safety management standards and documentation, including their application.**
- 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 Order 5480.21, Unreviewed Safety Questions**
 - **DOE Order 5480.22, Technical Safety Requirements**
 - **DOE Order 5480.23, Nuclear Safety Analysis Reports**
 - **DOE O420.1, Facility Safety**
 - **DOE O425.1, 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-3006-95, Planning and Conduct of Operational Readiness Reviews (ORR)**
 - **DOE-STD-3009-94, Preparation Guide for U.S. DOE Nonreactor Nuclear Facility Safety Analysis Reports**
 - **DOE-STD-3011-94, Guidance for Preparation of DOE Order 5480.22 (TSR) and DOE Order 5480.23 (SAR) Implementation Plans**
 - **DOE P410.1A, Promulgating Nuclear Safety Requirements**

DOE Order 5480.21

Purpose

To set forth the definition and basis for determining the existence of an Unreviewed Safety Question (USQ).

Content

The concept of the USQ was established to allow contractors to make physical and procedural changes and to conduct test and experiments without prior DOE approval, as long as these changes do not explicitly or implicitly affect the authorization basis of the facility or result in a technical safety requirement change. The intent of this Order is to provide contractors with the flexibility needed to conduct day-to-day operations and to require that those issues with a potential impact on the authorization basis, and therefore the safety of the facility, be brought to the attention of DOE-thus maintaining the proper safety focus. The authorization basis is described in documents such as the facility Safety Analysis Report (SAR), other safety analyses, Hazard Classification Documents, the Technical Safety Reports (TSRs), DOE-issued safety evaluation reports, and facility-specific commitments made in compliance with DOE Orders or policies.

DOE Order 5480.22

Purpose

To clearly state the requirements to have TSRs prepared for DOE nuclear facilities and to delineate the criteria, content, scope, format, approval process, and reporting requirements of these documents and revisions thereof.

Content

It is the policy of the Department that nuclear facilities operate within approved TSRs, which prescribe the bounds for safe operation of these facilities in order to protect the health and safety of the public and reduce risk to workers. Contents include a list of responsibilities and authorities, a list of definitions, instructions for preparing TSRs, and a Writer's Guide.

DOE Order 5480.23

Purpose

To establish requirements for contractors responsible for the design, construction, operation, decontamination, or decommissioning of nuclear facilities to develop safety analyses that establish and evaluate the adequacy of the safety bases of the facilities. The nuclear SAR required by this Order documents the results of the safety analysis.

Content

It is the policy of the Department that nuclear facilities and operations be analyzed to identify all hazard and potential accidents associated with the facility and the process systems, components, equipment, or structures and to establish design and operational means to mitigate these hazards and potential accidents. The results of these analyses are to be documented in SARs. The identified hazards and the SAR are to be approved by DOE. Contents include a list of responsibilities and authorities, a list of definitions, requirements for preparing and implementing a SAR and an attachment that provides guidance and direction for complying with the Order.

DOE O425.1

Purpose

The objective of this Order is to establish facility safety requirements related to nuclear safety design, criticality safety, fire protection and natural phenomena hazards mitigation.

Contents

Contents include a list of responsibilities and authorities, and requirements for nuclear safety, explosive safety, fire protection, and nuclear criticality safety.

DOE O425.1

Purpose

To establish the requirements for startup of new nuclear facilities and for the restart of existing nuclear facilities that have been shutdown. Nuclear facilities are activities or operations that involve radioactive and/or fissionable materials in such form or quantity that a nuclear hazard potentially exists to the employees or the general public. The requirements specify a readiness review process that shall, in all cases, demonstrate that it is safe to startup (or restart) the applicable facility. The facility shall be started up (or restarted), only after documented independent reviews of readiness have been conducted and the approvals specified in this Order have been received. The readiness reviews are

not intended to be tools of line management to achieve readiness. Rather, the readiness reviews provide an independent confirmation of readiness to start or restart operations.

Contents

Contents include twenty core requirements for conducting operational readiness reviews, general requirements for conducting readiness assessments, a list of responsibilities and authorities, and the requirements for contractors operating within the DOE nuclear facilities.

DOE-STD-1027-92, Guidance on Preliminary Hazard Classification and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear SARs

Purpose

The purpose of this DOE standard is to establish guidance for the preparation and review of hazard categorization and accident analyses techniques as required in DOE Order 5480.23, Nuclear SARs.

Contents

This standard provides specific guidance on several of the requirements contained in DOE Order 5480.23, Nuclear SARs. Section 1 establishes the threshold quantities of hazardous materials which, if exceeded, would mandate the development of a safety analysis report under the Order. Section 2 discusses the safety analysis report upgrade plan and schedule that must be submitted to each secretarial officer. Section 3 provides a uniform methodology for hazard categorization. Section 4 gives additional specific guidance on the use of the graded approach and accident/hazard analysis techniques for compliance with the Order.

DOE-STD-3009-94, Preparation Guide for DOE Nonreactor Nuclear Facility SARs

Purpose

The purpose of this standard is to indicate scope and general applicability of DOE Order 5480.23, Nuclear SARs.

Contents

This standard address the following major topics related to implementing DOE Order 5480.23, Nuclear SARs.

- SAR Preparation
- Hazard Analysis
- Accident Analysis
- Application of the Graded Approach

DOE-STD-3011-94, Guidance for Preparation of DOE Order 5480.22 TSR and DOE Order 5480.23 SAR Implementation Plans.

Purpose

The purpose of this standard is to provide guidance for the preparation of implementation plans for DOE Order 5480.23, TSR and DOE Order 5480.23, Nuclear SARs.

Contents

This standard is structured to address the following elements that are required in the implementation plans:

- Overall plan and schedule for the SAR and TSP upgrades, including prioritization factors affecting plans and schedules
- Cost for the upgrades
- Major assumptions
- Needs for upgrades and level of effort expected
- Preliminary assessment of hazards
- Basis for interim operation

DOE P410.1A, Promulgating Nuclear Safety Requirements

Purpose

This Policy sets forth the procedural framework for promulgating nuclear safety requirements of general applicability.

Contents

Contents include policy statements on the promulgation of nuclear safety requirements, compliance with procedural requirements, the use of notice and comment rulemaking, and timely completion of rulemakings.

Additional information available at <http://www.directives.doe.gov>

- b) Discuss the purpose, content, and philosophy, as appropriate to the position, of the following safety management standards for nuclear explosive safety.
- DOE O452.1, Nuclear Explosive and Weapon Surety
 - DOE O452.2, Safety of Nuclear Explosive Operations
 - **DOE O461.1, Packaging and Transfer or Transportation of Materials of National Security Interest**
 - **DOE Order 5610.12, Packaging and Offsite Transportation of Nuclear Components, and Special Assemblies Associated with the Nuclear Explosives**
 - DOE Order 5610.13, Joint DOE/DoD Nuclear Weapon System Safety, Security, and Control Activities
 - **DOE Order 5610.14, Transportation Safeguards System Program Operations**
 - DOE Order 5660.1B, Management of Nuclear Materials

NOTE: DOE Orders 5610.12 and 5610.14 were replaced by DOE O 461.1, Packaging and Transfer or Transportation of Materials of National Security Interest on 9/29/00.

DOE O452.1

Purpose

To establish requirements and responsibilities for the DOE's Nuclear Explosive and Weapon Surety (NEWS) Program. To maintain a formal, comprehensive, and systematic DOE NEWS Program to protect the public and worker health and safety and the environment while supporting national defense requirements. To establish nuclear explosive surety standards, nuclear weapon design surety requirements and appraisal requirements for the DOE NEWS Program. To establish specific requirements for related elements of the DOE NEWS Program as provided in the 452- and 5610-series Orders.

Contents

Contents include requirements related to the following:

- Nuclear Explosive Safety and Security
- Nuclear Explosive Use Control
- Nuclear Test Detonation Safety
- Nuclear Explosive Design Surety
- Nuclear Weapons Surveillance Program
- Authorization for a Nuclear Explosive Operation
- Responsibilities and Authorities
- Definitions

DOE Order 452.2

Purpose

To establish the applicability, requirements, and responsibilities for ensuring the safety of the DOE's nuclear explosive operations and associated activities and facilities, and for protecting the environment and the health and safety of workers and the public.

Contents

The contents include general requirements for nuclear explosive operations, operational safety programs, safety analysis and the operational safety and health program. The Order also includes a list of responsibilities and authorities.

DOE Order 461.1 (Replaced DOE Orders 5610.12 and 5610.14 on 9/29/00)

Purpose

To establish requirements and responsibilities for the Transportation Safeguards System packaging and transportation and onsite transfer of nuclear explosives, nuclear components, Naval nuclear fuel elements, Category I and Category II special nuclear materials, special assemblies, and other materials of national security interest.

Contents

The contents include requirements related to the following:

- Packaging and Transportation Procedures
- Off-Site Packaging and Transport
- On-Site Packaging and Transfer
- Training
- Quality Assurance Plan and Packaging, Transfer and Transportation Plans
- Safeguards and Security
- Exemptions

DOE Order 5610.12

Purpose

Establish the DOE policy, requirements, objectives, authorities, procedures, and responsibilities for the safe packaging and offsite transportation of nuclear components, and special assemblies associated with the nuclear weapons program requiring the use of the transportation safeguards system.

Policy

Nuclear components, and special assemblies associated with the nuclear weapons program shall be transported by the transportation safeguards system in a configuration certified or authorized pursuant to this Order, and in a manner that ensures the safety and health of DOE workers, the public, and the environment. It is the goal of DOE that the level of safety and health required for DOE transportation operations be equivalent to, or greater than, that provided by compliance to applicable Federal, State, tribal, and local regulations. The risk to the public due to DOE transportation operations shall be minimized by the implementation of positive measures. Contents include a list of responsibilities and authorities and a list of definitions related to offsite transportation of nuclear components.

This Order canceled 9/29/00. See DOE O 461.1 in this section

DOE Order 5610.13

Purpose

To establish DOE policy, procedures, authorities, and responsibilities for addressing joint nuclear weapon and nuclear weapon system safety, security, and control activities in conjunction with the DoD.

Policy

DOE shall establish and maintain inter- and intra-Departmental procedures for addressing and conducting joint DOE/DoD nuclear weapon and nuclear weapon system safety, security, and control activities to assure that these areas are adequately addressed from the initial conceptual design through the retirement phase of each weapon system. Contents include a list of responsibilities and authorities and procedures for DOE oversight throughout all nuclear weapon program phases.

DOE Order 5610.14

Purpose

To establish DOE policies for and implementation of the management and operation of the Transportation Safeguards System (TSS) program.

Policy

It is Departmental policy to ensure TSS operations are accomplished in a manner commensurate with established practices and procedures for cargo safeguards protection, potential risks to national security, safety of personnel, the public, the environment, and program continuity. Nuclear explosives, DOE-owned Categories I and II quantities of special nuclear materials, classified configurations of nuclear weapon systems, limited life components, and other forms and quantities of strategic materials as approved by AL, shall be provided safeguards protection by TSS. Contents include a list of responsibilities and authorities, a list of definitions, and the requirements regarding the following issues related to transportation safety:

- Physical Protection
- Communications
- Protection Equipment
- Training and Certification
- Readiness and Modernization
- Performance and Validation
- Human Reliability Programs
- Transportation Safety
- Threat Guidance
- Counterintelligence
- Quality Assurance
- Maintenance

This Order canceled 9/29/00. See DOE O 461.1 in this section.

DOE Order 5660.1B

Purpose

To establish requirements and procedures for the management of nuclear materials within the DOE.

Contents

Contents include a list of responsibilities and authorities, a list of definitions, and the requirements regarding the following issues related to nuclear materials management:

- Forecasting nuclear material requirements
- Materials management plans
- Analytical studies
- Nuclear material allotments
- Nuclear material inventory management
- Inactive materials
- Material management reviews and appraisals

Additional information available at <http://www.directives.doe.gov>

c) Describe the process for determining the applicable set of standards for operations such as

- S/RIDs
- WSS

S/RIDs

An S/RID is defined as containing the standards/requirements that are necessary and sufficient to provide an adequate level of protection of workers, the public, and the environment. The determination of selected standards is to be tailored to the work to be performed. Judgments related to inclusion of requirements in S/RIDs will be based on the hazards present at the site, facility, or activity.

WSS

WSS are sets of environment, safety, and health laws, regulations, and other standards that have been specifically chosen for applicability and appropriateness for a particular scope of work. They are selected to provide adequate protection (when properly implemented) against the hazards associated with that work. WSS sets were previously known as Necessary and Sufficient Sets of standards prior to the name change directed by the Secretary of Energy in April 1996.

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

S/RIDS

The implementation of requirements involves two phases: first, the requirements must be fully applied in the implementing documents of the site, facility, or activity (e.g., policies, procedures, engineering drawings, training materials, safety analysis reports, etc.); second, the actions and conditions at the site, facility, or activity must be consistent with the specifications in the implementing documents. The assessment activities related to the two

phases are very different, and, therefore, separate approaches are required for their performance. Phase I assessments involve the review and evaluation of the implementing documents to determine whether they specify the actions and conditions necessary for compliance with each requirement. Phase 2 assessments involve the review of activities and conditions to determine whether they adhere to the implementing documents. Assessments must include both phases to ensure compliance.

Additional information available at http://www.ornl.gov/doe_oro_dmg/smsrid.htm

WSS

WSS sets are developed using a DOE-authorized closure process. This process is described in DOE M450.3-1. The DOE Closure Process For Necessary and Sufficient Sets Of Standards. Use of the process is authorized in DOE P450.3, Authorizing Use of the Necessary and Sufficient Process for Standards-Based Environment, Safety, and Health Management. Both of these directives were issued January 25, 1996.

The primary objective of the closure process is the identification of a set of standards that, when implemented, will provide reasonable assurance that the environment and the safety and health of the workers and the public will be protected during the performance of work. All applicable requirements of law and regulation are included in the WSS set (even if accidentally omitted from the formal list).

The closure process relies on expert judgment of a team of people familiar with the work and with ES&H controls and programs. DOE and contractor line management, ES&H professionals, and outside stakeholders such as the public and regulators, all have the opportunity to provide input to the process. The process promotes re-examination of missions, activities, work operations, and work controls to ensure that work is carried out efficiently in a safe, responsible, and cost-efficient manner.

Additional information available at http://www.ornl.gov/doe_oro_dmg/faqs.htm#wsstop

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

Changes to safety documentation is carefully controlled through a document control program. Check the document control program at your facility for complete details.

f) Discuss the general types of standards established by industry standards organizations such as the following:

- **American Nuclear Society (ANS)**
- **American National Standards Institute (ANSI)**
- **American Society of Mechanical Engineers (ASME)**
- **American Society for Testing and Materials (ASTM)**
- **International Organization for Standardization (ISO)**
- **National Fire Protection Association (NFPA)**

ANS

This organization's standards are developed to promote the advancement of engineering and science relating to the atomic nucleus, and of allied sciences and arts.

Additional information available at <http://www.ans.org/>

ANSI

ANSI does not itself develop standards. Rather it facilitates development by establishing consensus among qualified groups. The ANSI Federation has maintained as its primary goal the enhancement of global competitiveness of U.S. business and the American quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems and promoting their integrity.

Additional information available at <http://www.ansi.org/>

ASME

ASME maintains and distributes 600 codes and standards used around the world for the design, manufacturing and installation of mechanical devices.

Additional information available at <http://www.asme.org/>

ASTM

ASTM develops and provides voluntary consensus standards, related technical information, and services having internationally recognized quality and applicability that

- promote public health and safety, and the overall quality of life;
- contribute to the reliability of materials, products, systems and services; and
- facilitate national, regional, and international commerce.

Additional information available at <http://www.astm.org/>

ISO

The ISO is a worldwide federation of national standards bodies from some 130 countries, one from each country. ISO is a non-governmental organization established in 1947. The mission of ISO is to promote the development of standardization and related activities in the world with a view to facilitating the international exchange of goods and services, and to developing cooperation in the spheres of intellectual, scientific, technological and economic activity. ISO's work results in international agreements that are published as international standards.

Additional information available at <http://www.iso.ch/>

NFPA

The NFPA publishes the National Electrical Code, the Life Safety Code, the Fire Prevention Code, the National Fuel Gas Code, and the National Fire Alarm Code. The mission of NFPA, which was organized in 1896, is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating scientifically based consensus codes and standards, research, training, and education.

Additional information available at <http://www.nfpa.org/>

g) Describe the relationship between DOE Directives and industry and military standards.

The policy of the DOE is to use a consistent and effective management system for the development, communication, implementation, and periodic review of its directives. All directives issued by the Department will be in accordance with the Department's mission, core values, and strategic plan, which provide the foundation for all activities of the Department. The Department adopts National Consensus Standards and other commercial and industry standards where feasible and avoids duplication and unnecessary additions to external and internal requirements.

7. A Senior Technical Safety Manager shall have a working level knowledge of the application of environmental standards, laws, and regulations.

a) Discuss the interrelationship between the following:

- **Environmental law**
- **Statutory construction**
- **The United States Code**
- **The Code of Federal Regulations**
- **State Laws and Regulations**

Environmental law consists of a system using all of the laws in the U.S. legal system to minimize, prevent, punish, or remedy actions that damage or threaten to damage the public health and safety or the environment. Statutes or Executive Orders empower an administrative agency to develop and promulgate regulations. Statutes direct and authorize, while regulations detail implementation. When a statute is passed through both Houses of Congress, and is signed into law by the President, it become the authorization and guidance to a regulating agency to establish a regulation, and is published in the United States Code. The regulating agency formulates and promulgates the proposed regulation by publishing it in the Federal Register to allow for public review and comment. When finalized, the regulation is again published in the Federal Register in its amended form to become law. These final regulations are combined annually into the Code of Federal Regulations. State laws and regulations are passed in the same manner as Federal laws, except they require the signature of the state's Governor to become law. With respect to environmental laws, the states can enact laws and regulations more stringent than their Federal counterparts, but no less stringent or they are prone to preemption.

b) Describe the organization, mission, and enforcement authorities of the Environmental Protection Agency (EPA).

EPA Organization

The EPA is directed by an administrator and deputy administrator who are appointed by the President and subject to the approval of the Senate. The President also appoints the EPA's Inspector General, General Counsel, and nine assistant administrators, each subject to Senate confirmation. The nine assistant administrators are charged with management of specific programs. Additionally, three associate administrators are appointed by the Administrator and tasked with the execution of programs for public affairs, congressional and legislative relations, and regional, state, and local relations. Ten regional administrators have the task of interfacing with state and local governments to achieve the agency's mission.

EPA Mission

The mission of the EPA is the protection of the nation's land, air, and water resources through actions leading to a balance between human activities and the capacity for natural systems to nurture and support life. Activities in support of this mission include the identification, assessment, and management of serious risks to the public health and the environment, and performance of research, development, and technical assistance to achieve

agency goals. EPA works with state, county, municipal, and tribal governments to fulfill its missions and solicits public involvement to this end.

EPA Enforce Authorities

The EPA is organized into offices for the enforcement of environmental regulations and the management of agency functions as follows:

- The office of Water administers the Safe Drinking Water Act, the Clean Water Act, and the Ocean Dumping Ban Act of 1988;
- The Office of Air and Radiation enforces the Clean Air Act, sets the National Ambient Air Quality Standards, and established criteria, standards, and policies to control radiation and indoor air pollution exposures;
- The Office of Solid Waste and Emergency Response administers the provisions of the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, and the Emergency Planning and Community Right-to-Know Act;
- The Office of Pollution Prevention, Pesticides and Toxic Substances enforces the provisions of the Federal Insecticide, Fungicide, the Rodenticide Act, the Toxic Substances Control Act, and establishes tolerances for pesticide residues in foods under the Federal Food, Drug, and Cosmetics Act; and
- The Office of Enforcement and Compliance Assurance enforces environmental laws by investigating and preparing cases for judicial action as necessary. This office administers the National Environmental Policy Act and other regulations pertaining to Federal agencies.

c) Discuss the applicability and timing for National Environmental Policy Act (NEPA) documentation and the role of the Department and contractor in implementation.

In addition to requirements established in NEPA and the Regulations, DOE's Compliance Program shall include:

- A system of DOE NEPA compliance officers.
- Internal scoping procedures for environmental assessments and environmental impact statements that include development of a schedule. For an environmental impact statement, the schedule, absent extraordinary circumstances, will provide for completion of a final environmental impact statement within 15 months of the issuance of the Notice of Intent.
- Quality assurance plans and public participation plans.
- Annual planning summaries
- Document Manager for each environmental impact statement and environmental assessment.
- A system for reporting lessons learned and encouraging continuous improvement.
- Tracking and annually reporting progress in implementing a commitment for environmental impact mitigation that is essential to render the impacts of a proposed action not significant, or that is made in a record of decision.

Although contractors may assist in the Department's NEPA implementation, the legal obligation to comply with NEPA belongs to DOE.

d) Discuss the responsibilities of the Federal staff for oversight of the contractor organization for environmental compliance.

- Issue and update, as required, a general environmental statement that reflects the statement of policy in this Order and contains broad environmental protection goals for all facilities and activities for which he or she is responsible.
- Ensure that all operations under their authority comply with applicable environmental protection laws and regulations, and directives.
- Identify significant environmental compliance issues that require resolution and coordination, and advise EH-1 and Headquarters program elements in a timely manner.
- Ensure that all required environmental permits are secured from the appropriate regulatory agency in a timely fashion.
- Conduct environmental appraisals of programs, projects, and facilities according to ES&H requirements, and provide copies of appraisal reports to EH-1 and the appropriate program office.
- Establish and maintain liaison and cooperative programs with appropriate Federal, regional, state, and local environmental officials to facilitate effective environmental management.
- Develop and implement programs that direct contractors to execute environmental protection compliance programs and policies, and provide for oversight, confirmation, and independent verification of those contractor programs.
- Prepare long-range environmental protection plans according to guidance issued by EH-1.
- Ensure that budget requests provide for required environmental protection upgrades and corrective action, that they are timely, and are consistent with pollution abatement plans prepared as required by OMB Circular A-106.
- Prepare biannual pollution abatement plans required by OMB Circular A-106 and submit to EH-1 on a schedule provided by that office.
- Provide EH-1 all environmental information and documentation that is requested.
- Curtail or suspend any operation that poses a clear and present danger to members of the public or the environment.
- Provide for community public information and education programs concerning DOE environmental protection programs, consistent with the requirements of environmental regulations and national security interests.

e) Discuss the enforcement of environment statutes under civil and criminal authorities.

Under environmental statutes, enforcement actions can be initiated by several sources. Certain environmental statutes can be enforced, with limited exceptions, only through Federal action. However, in cases where larger penalties are imposed and/or involve court action, EPA is required to seek prosecution through the Department of Justice. In states where enforcement of regulations has been delegated, the state may undertake legislative action according to Federal guidelines. In cases where authority has been delegated to the states, the state, Federal government, or both may exercise enforcement rights. If the statute being enforced is unique to the state, the state has the entire responsibility for enforcement. Local

governments enforce local laws. While criminal enforcement actions are primarily the province of governments, individuals under citizen suit provisions may initiate civil actions in a variety of environmental regulations. Additionally, common law suits by individuals are viable as a means of recovering damages suffered for monetary loss or the loss of use of property as a result of environmental violations.

Enforcement of environmental laws is achieved through the imposition of various liabilities ranging from administrative fines through criminal prosecution. Factors such as the nature of the violation, consequence of the violation, culpability, the particular regulation or law violated, and the party initiating legal action determine the legal avenue to be pursued in redress of the violation. Liabilities fall into three general categories, penalties, remedy requirements, and compensation requirements. Environmental penalties may be imposed while a violation exists, regardless of actual injury. Penalties can be administrative or criminal depending on the degree of culpability or blame that is attached to the violation. Culpability is determined based on the intent of the violator and on the absence of due care. Civil and administrative penalties comprise the majority of penalties imposed and can take the form of monetary fines ranging from \$5 to \$25,000 per day per violation. Civil penalties are a result of actions filed in civil courts, while administrative penalties are levied by the regulating agency. In cases where the violator appeals an administrative action or refuses to pay the fine, the case will be referred to the civil court system. Certain environmental statutes exercise two classes of administrative. Class I penalties are imposed with a minimum of formality and no hearing of record. Class II penalties may cost \$25,000 per day per violation and require an on-the-record hearing. Civil and administrative penalties may be negotiated with the regulating agency prior to judicial decision. They may be contained in compliance agreements, and imposed as part of a judicial decree. Criminal penalties for environmental violations are incurred for the commission of a prohibited act or the omission of a required act under an environmental regulation in conjunction with an element of culpability. Criminal penalties can result in imprisonment, in addition to monetary fines and can be directed against individuals in an organization as well as the organization. Criminal charges are sought after for knowing violations, negligent violations, violation of notice requirements and issuing false statements, and endangerment. The second category of liability is the requirement to respond to the results of an environmental violation. Three primary statutes require response actions—the Clean Water Act, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Resource Conservation and Recovery (RCRA). The third category of liability is the requirements to compensate for the harm caused by the violation. Compensation is in addition to any fines levied and is usually the result of a toxic tort suit or an action to recover natural resource damages.

f) Discuss ISO 14000, Environmental Management Systems Standards, and their relevance to DOE and contractor performance.

The ISO 14000 series addresses environmental management systems, environmental auditing, environmental labeling, environmental performance evaluation, and life cycle assessment. These International standards are voluntary standards for the establishment of a common worldwide approach to management systems that will lead to the protection of the earth's environment while spurring international trade and commerce. They will serve as

tools to manage corporate environmental programs and provide an internationally recognized framework to measure, evaluate, and audit these programs. When implemented, these standards will ensure consistency in environmental management practice, harmonize national environmental standards within an international framework, simplify registrations, labeling and conflicting requirements, provide a single system for all transnational subsidiaries, and offer guidelines for environmental management excellence. Even though the standards do not prescribe performance levels, performance improvements will invariably be achieved by the Department if its commitment to environmental care is emphasized and employees are trained and aware of the policies in place to protect the environment. The ISO 14000 voluntary environmental management standards and guidelines are intended to be practical, useful and usable for companies or organizations of all sizes.

Additional information available at http://www.ansi.org/public/iso14000/faq/faq_b.html

g) Discuss the purpose and scope of S/RIDs and WSS and, their relationship to environmental standards, laws, and regulations.

S/RIDs

The S/RID is a living document that will need to be revised and updated, in accordance with the site, facility, or activity change control process, during the life cycle of the site, facility, or activity in response to:

- evaluation of new or revised source documents;
- operating experience, related experience from other DOE and commercial nuclear facilities, relevant research, and lessons learned; and
- changes in mission, activities, or configuration.

At any time during the life cycle of a site, facility, or activity, an organization may submit a new S/RID if warranted by major events such as change in mission, or proposed revision of the S/RID. All proposed changes in S/RIDs or proposed new S/RIDs shall be reviewed and approved in accordance with the approval process applicable to the initial S/RID.

The S/RID shall be reviewed and certified to be current and appropriate by the managers responsible for implementation of its requirements on an established schedule

WSS

WSS sets are developed using a closure process. The closure process consists of six steps that can be grouped into the Plan-Do-Check-Act cycle of quality management:

- *Planning:* Determining that a set of standards is needed
- *Planning:* Creating the team(s)
- *Planning:* Defining and agreeing to protocols and documentation requirements for the teams
- *Doing:* Identifying the hazards and the associated the set of standards
- *Checking:* Confirming the set of standards
- *Acting:* Approving the set of standards and authorizing work to the set

Additional information available at <http://tis.eh.doe.gov/dsc/>

8. A Senior Technical Safety Manager shall have a working level knowledge of the application of worker protection standards.

a) Discuss the interrelationship between the following:

- **Occupational safety and health laws**
- **Statutory construction**
- **The United States Code**
- **The Code of Federal Regulations**
- **State Laws and Regulations**

Environmental law consists of a system using all of the laws in the U.S. legal system to minimize, prevent, punish, or remedy actions that damage or threaten to damage the public health and safety or the environment. Statutes or Executive Orders empower an administrative agency to develop and promulgate regulations. Statutes direct and authorize, while regulations detail implementation. When a statute is passed through both Houses of Congress, and is signed into law by the President, it becomes the authorization and guidance to a regulating agency to establish a regulation, and is published in the United States Code. The regulating agency formulates and promulgates the proposed regulation by publishing it in the Federal Register to allow for public review and comment. When finalized, the regulation is again published in the Federal Register in its amended form to become law. These final regulations are combined annually into the Code of Federal Regulations. State laws and regulations are passed in the same manner as Federal laws, except they require the signature of the state's Governor to become law. With respect to environmental laws, the states can enact laws and regulations more stringent than their Federal counterparts but no less stringent or they are prone to preemption.

b) Describe the organization, mission and enforcement authorities of the Occupational Safety and Health Administration (OSHA).

Organization

OSHA is headed by an Assistant Secretary of Labor for Occupational Safety and Health. The Agency is organized functionally, with major programs grouped into Directorates headed by members of the Senior Executive Service. Programs are carried out by Regional Offices and subordinate Area and District Offices (or, in the case of the San Francisco Region, Service Centers). Major organizational elements are as follows:

Office of the Assistant Secretary — Advises and assists the Secretary of Labor on all matters related to the policies and programs that are to assure safe and healthful working conditions for the working men and women of the nation, and provides executive direction to the occupational safety and health program.

Directorate of Health Standards Programs — Develops and promulgates workplace standards and regulations to ensure healthful working conditions for the nation's workforce.

Directorate of Safety Standards Programs — Provides workplace standards and regulations to ensure safe working conditions for the nation's workers.

Directorate of Compliance Programs — Provides a balanced program of compliance for OSHA; establishes and maintains a comprehensive occupational safety and health compliance guidance and assistance program; and establishes and maintains discrimination complaint investigation programs.

Directorate of Federal/State Operations — Provides for the development, evaluation, and performance analysis of state occupational safety and health programs; educates and trains employers and employees in the recognition, avoidance and prevention of unsafe and unhealthful working conditions; provides for a program of consultation and advice to employers and employees and their representative organizations as to effective means of preventing occupational injuries and illnesses; and develops, implements and evaluates voluntary programs in cooperation with industry, labor and their representatives.

Directorate of Technical Support — Serves as the principal source of Agency expertise with respect to scientific, engineering, and medical issues involved in the overall occupational safety and health field; and provides technical assistance and support to all other National Office and Regional Office organizations of the Agency.

Directorate of Construction — Serves as OSHA's principal source for standards, regulations, policy, programs, and assistance to OSHA Offices, other Federal agencies, the construction industry, and the general public with respect to construction safety and health.

Directorate of Policy — Reconciles the views of Congress, the Office of Management and Budget (OMB), the Secretary of Labor, and the public as to the role of OSHA into a consistent and coherent Agency policy, taking into consideration the economic, technical, and political consequences of Agency actions, including the effects of Agency policies and actions with regard to small businesses.

Directorate of Information Technology — Provides a comprehensive, integrated management information, data collection and analysis, and networked communications program for the Occupational Safety and Health Administration. Directorate of Administrative Programs — Provides administrative management support to the OSHA in the areas of management data and statistics coordination, personnel management, program budgeting and planning, financial control, administrative management systems, and National Office administrative services.

Regional Administrators — Plan, direct, and administer comprehensive occupational safety and health programs throughout OSHA's regions.

Mission

In 1970, Congress established the OSHA. As defined in its enabling legislation, P.L. 91-596, *the Occupational Safety and Health Act of 1970*, OSHA's mission is to assure so far as possible every working man and woman in the nation safe and healthful working conditions. This mandate involves the application of a set of tools by OSHA (e.g., standards development, enforcement, and compliance assistance) which enable employers to maintain safe and healthful workplaces.

Enforcement

If, after an inspection or investigation, the Secretary issues a citation under section 9(a), he shall, within a reasonable time after the termination of such inspection or investigation, notify the employer by certified mail of the penalty, if any, proposed to be assessed under section 17 and that the employer has fifteen working days within which to notify the Secretary that he wishes to contest the citation or proposed assessment of penalty. If, within fifteen working days from the receipt of the notice issued by the Secretary, the employer fails to notify the Secretary that he intends to contest the citation or proposed assessment of penalty, and no notice is filed by any employees or representative of employees under subsection (c) within such time, the citation and the assessment, as proposed, shall be deemed a final order of the Commission and not subject to review by any court or agency.

If the Secretary has reason to believe that an employer has failed to correct a violation for which a citation has been issued within the period permitted for its correction (which period shall not begin to run until the entry of a final order by the Commission in the case of any review proceedings under this section initiated by the employer in good faith and not solely for delay or avoidance of penalties), the Secretary shall notify the employer by certified mail of such failure and of the penalty proposed to be assessed under section 17 by reason of such failure, and that the employer has fifteen working days within which to notify the Secretary that he wishes to contest the Secretary's notification or the proposed assessment of penalty. If, within fifteen working days from the receipt of notification issued by the Secretary, the employer fails to notify the Secretary that he intends to contest the notification or proposed assessment of penalty, the notification and assessment, as proposed, shall be deemed a final order of the Commission and not subject to review by any court or agency.

If an employer notifies the Secretary that he intends to contest a citation issued under section 9(a) or notification issued under subsection (a) or (b) of this section, or if, within fifteen working days of the issuance of a citation under section 9(a), any employee or representative of employees files a notice with the Secretary alleging that the period of time fixed in the citation for the abatement of the violation is unreasonable, the Secretary shall immediately advise the Commission of such notification, and the Commission shall afford an opportunity for a hearing (in accordance with section 554 of title 5, United States Code, but without regard to subsection (a)(3) of such section). The Commission shall thereafter issue an order, based on findings of fact, affirming, modifying, or vacating the Secretary's citation or proposed penalty, or directing other appropriate relief, and such order shall become final thirty days after its issuance. Upon a showing by an employer of a good faith effort to comply with the abatement requirements of a citation, and that abatement has not been completed because of factors beyond his reasonable control, the Secretary, after an opportunity for a hearing as provided in this subsection, shall issue an order affirming or modifying the abatement requirements in such citation. The rules of procedure prescribed by the Commission shall provide affected employees or representatives of affected employees an opportunity to participate as parties to hearings under this subsection.

c) Describe the following programs and their relevance to the Department.

- **VPP**
- **Responsible Care Program**

VPP

VPP participants establish and maintain excellent safety and health programs in their workplaces that are recognized by OSHA as models for their industries. Cooperative interaction with OSHA gives companies the opportunity to provide OSHA with input on safety and health matters and to provide industry with models of effective means for accomplishing workplace safety and health objectives. While it certainly is necessary to maintain compliance activity, resources used to promote the Voluntary Protection Programs will benefit both the worker and the bottom line. When a compliance officer cites a worksite for unguarded machinery, the company pays the fine and provides appropriate guards. When the Department institutes the elements necessary for membership in the VPP, every person entering a worksite is protected from occupational safety and health hazards, and the other improvements follow.

Responsible Care Program

Responsible Care is an initiative developed and adopted by DOE to improve continuously, environmental, health, and safety performance of their operations and products in a manner responsive to the concerns of the public.

d) Discuss the enforcement of occupational safety and health statutes under civil and criminal statutes.

Any employer who willfully or repeatedly violates the requirements of section 5 of this Act, any standard, rule, or order promulgated pursuant to section 6 of this Act, or regulations prescribed pursuant to this Act, may be assessed a civil penalty of not more than \$70,000 for each violation, but not less than \$5,000 for each willful violation.

Any employer who has received a citation for a serious violation of the requirements of section 5 of this Act, of any standard, rule, or order promulgated pursuant to section 6 of this Act, or of any regulations prescribed pursuant to this Act, shall be assessed a civil penalty of up to \$7,000 for each such violation.

Any employer who has received a citation for a violation of the requirements of section 5 of this Act, of any standard, rule, or order promulgated pursuant to section 6 of this Act, or of regulations prescribed pursuant to this Act, and such violation is specifically determined not to be of a serious nature, may be assessed a civil penalty of up to \$7,000 for each violation.

Any employer who fails to correct a violation for which a citation has been issued under section 9(a) within the period permitted for its correction (which period shall not begin to run until the date of the final order of the Commission in the case of any review proceeding under section 10 initiated by the employer in good faith and not solely for delay or avoidance of penalties), may be assessed a civil penalty of not more than \$7,000 for each day during which such failure or violation continues.

Any employer who willfully violates any standard, rule, or order promulgated pursuant to section 6 of this Act, or of any regulations prescribed pursuant to this Act, and that violation caused death to any employee, shall, upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than six months, or by both; except that if the conviction is for a violation committed after a first conviction of such person, punishment shall be by a fine of not more than \$20,000 or by imprisonment for not more than one year, or by both.

Any person who gives advance notice of any inspection to be conducted under this Act, without authority from the Secretary or his designees, shall, upon conviction, be punished by a fine of not more than \$1,000 or by imprisonment for not more than six months, or by both.

Whoever knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to this Act shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six months, or by both.

Section 1114 of title 18, United States Code, is hereby amended by striking out “designated by the Secretary of Health, Education, and Welfare to conduct investigations, or inspections under the Federal Food, Drug, and Cosmetic Act” and inserting in lieu thereof “or of the Department of Labor assigned to perform investigative, inspection, or law enforcement functions”.

Notwithstanding the provisions of sections 1111 and 1114 of title 18, United States Code, whoever, in violation of the provisions of section 1114 of such title, kills a person while engaged in or on account of the performance of investigative, inspection, or law enforcement functions added to such section 1114 by paragraph (1) of this subsection, and who would otherwise be subject to the penalty provisions of such section 1111, shall be punished by imprisonment for any term of years or for life.

Any employer who violates any of the posting requirements, as prescribed under the provisions of this Act, shall be assessed a civil penalty of up to \$7,000 for each violation.

The Commission shall have authority to assess all civil penalties provided in this section, giving due consideration to the appropriateness of the penalty with respect to the size of the business of the employer being charged, the gravity of the violation, the good faith of the employer, and the history of previous violations.

For purposes of this section, a serious violation shall be deemed to exist in a place of employment if there is a substantial probability that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in such place of employment unless the employer did not, and could not with the exercise of reasonable diligence, know of the presence of the violation.

Civil penalties owed under this Act shall be paid to the Secretary for deposit into the Treasury of the United States and shall accrue to the United States and may be recovered in a civil action in the name of the United States brought in the United States district court for the

district where the violation is alleged to have occurred or where the employer has its principal office.

e) Describe the role(s) the contractor plays in implementing occupational safety and health regulations.

Refer to DOE O420.1, Facility Safety, Attachment 2, Contractor Requirements Document.

**f) Discuss the purpose and scope of S/RIDs and WSS and, their relationship to environmental standards, laws, and regulations.
(Editor's Note: This is a duplicate of 7g.)**

S/RIDs

The S/RID is a living document that will need to be revised and updated, in accordance with the site, facility, or activity change control process, during the life cycle of the site, facility, or activity in response to:

- evaluation of new or revised source documents;
- operating experience, related experience from other DOE and commercial nuclear facilities, relevant research, and lessons learned; and
- changes in mission, activities, or configuration.

At any time during the life cycle of a site, facility, or activity, an organization may submit a new S/RID if warranted by major events such as change in mission, or proposed revision of the S/RID. All proposed changes in S/RIDs or proposed new S/RIDs shall be reviewed and approved in accordance with the approval process applicable to the initial S/RID.

The S/RID shall be reviewed and certified to be current and appropriate by the managers responsible for implementation of its requirements on an established schedule

WSS

WSS sets are developed using a closure process. The closure process consists of six steps that can be grouped into the Plan-Do-Check-Act cycle of quality management:

- *Planning*: Determining that a set of standards is needed
- *Planning*: Creating the team(s)
- *Planning*: Defining and agreeing to protocols and documentation requirements for the teams
- *Doing*: Identifying the hazards and the associated the set of standards
- *Checking*: Confirming the set of standards
- *Acting*: Approving the set of standards and authorizing work to the set

Additional information available at <http://tis.eh.doe.gov/dsc/>

9. A Senior Technical Safety Manager shall have a working level knowledge of the Department's Emergency Management resources including emergency plans, external agency involvement, interagency relationships, and the command and control function during an emergency.

a) Discuss the Department's three-tiered organizational approach to managing operational emergencies.

The DOE Comprehensive Emergency Management System is a three-tiered organizational approach to forming an integrated departmental Emergency Response Organization (ERO) structure. Responsibility begins at the facility or event scene level and rises through the cognizant Operations/Field Office to the Headquarters (HQ) Emergency Management Team (EMT). At each tier there is a designated ERO responsible for responding to and minimizing or mitigating the effects of operational emergencies.

b) Discuss the general roles and responsibilities of the Departmental elements for management of the Department's Emergency Management System as defined in DOE O151.1, Comprehensive Emergency Management System.

Roles and Responsibilities

- Implement emergency management policy and requirements, and maintain programs and systems consistent with policy and requirements.
- Establish and maintain an effective, integrated emergency management program.
- Partner with the Cognizant Secretarial Officers, the Associate Deputy Secretary for Field Management, the Assistant Secretary for Environment, Safety and Health, and the Director of Emergency Management to establish and maintain performance measures and criteria to implement this Order for facilities and activities under their cognizance, and to ensure that these performance measures and criteria are incorporated in contractual arrangements.
- Approve and submit approved site Emergency Plans to the Director of Emergency Management and the Cognizant Secretarial Officer(s).
- Approve and submit approved Emergency Planning Zones to the Assistant Secretary for Environment, Safety and Health; the Director of Emergency Management; and the Cognizant Secretarial Officer(s).
- Coordinate with the Cognizant Secretarial Officer(s) to ensure resources are available to implement this Order for facilities and activities under their cognizance.
- Ensure development of appropriate emergency plan implementing procedures for timely and accurate emergency classification, notification, and reporting of emergency events for facilities under their cognizance. Establish pre-authorization criteria when possible.
- Ensure emergency public information planning is integrated with the development and maintenance of Emergency Plans.
- Ensure effective communication systems and protocols are coordinated and maintained with the Headquarters Emergency Operations Center regarding emergencies involving or affecting facilities or materials under DOE jurisdiction or requiring DOE assistance.

- Review and approve Emergency Readiness Assurance Plans (ERAP) that cover facilities under their supervision; prepare the Operations/Field Office annual Emergency Readiness Assurance Plan; and submit it to the Cognizant Secretarial Officer and the Director of Emergency Management for inclusion in the annual report of the Under Secretary on the status of the Emergency Management System.
- Where applicable, pre-designate a DOE employee as the On Scene Coordinator for Federal responses under the National Contingency Plan and as the On Scene Commander and/or Senior Energy Official in accordance with the Federal Radiological Emergency Response Plan.
- Participate in the development and implementation of mutual assistance agreements with state, tribal, and local authorities.
- Ensure that hazards assessments and hazards surveys for emergency planning purposes are adequately performed and documented.
- Ensure Operations/Field Offices and contractors participate in a continuing emergency preparedness program of training, drills, and exercises.
- Conduct periodic assessments of facility emergency management programs and/or periodically review contractor self-assessment programs to ensure compliance with DOE directives and policy; provide the results/conclusions to the Cognizant Secretarial Officer and the Director of Emergency Management. Ensure a maximum of one assessment per site per year.
- During an emergency, conduct appropriate and necessary emergency actions.
- Implement corrective actions for lessons learned from actual emergency responses and based on findings from evaluations, assessments, and appraisals.
- Establish and maintain an Emergency Operations Center to respond to emergency events. Every DOE Emergency Operations Center shall be equipped with compatible communication, photo/video, and automatic data processing support specified by the Director of Emergency Management.
- Ensure that emergency plans and procedures are prepared, reviewed annually, and updated, as necessary, for all facilities under their purview and are integrated within the overall Operations/Field Office emergency preparedness program.
- Assign senior representatives to the Emergency Management Advisory Committee.
- Comply with the requirements of the DOE 5530-series Orders, which establish requirements for the radiological emergency response assets programs.
- Develop, implement, maintain, and update, as necessary, an emergency management program, commensurate with the facility-specific hazards and consistent with Departmental directives and standards of performance.
- Prepare and maintain emergency plans, procedures, and technical resource capabilities that address emergency classification, notification, reporting, response actions, training and drills, exercises, emergency public information, outreach and coordination, accident investigation, and applicable Federal statutes, State and local laws, DOE Orders, and implementing regulations and guidance.
- Prepare and submit to the cognizant Operations/Field Office Manager for approval documentation to establish Emergency Planning Zones, Emergency Plans, and Emergency Readiness Assurance Plans.
- Direct appropriate emergency response actions within the area under their control and at the scene of the emergency.

- Participate in the development of mutual assistance agreements with state, tribal, and local authorities.
- Ensure the effectiveness of a continuing emergency preparedness program.
- Establish and maintain an internal assessment program to ensure the readiness of emergency response capabilities, including developing and conducting a self-assessment program, as well as establishing systems and measures to monitor and evaluate line performance.

c) Define operational emergencies and the circumstances to which they apply as defined in DOE O151.1, Comprehensive Emergency Management System.

Operational emergencies are unplanned, significant events or conditions that require time-urgent response from outside the immediate/affected site/facility or area of the incident. Such emergencies are caused by, involve, or affect DOE facilities, sites, or activities and represent, cause, or have the potential to cause the events or conditions described below. Incidents that can be controlled by employees or maintenance personnel in the immediate/affected facility or area are not operational emergencies. Incidents that do not pose a significant hazard to safety, health, and/or the environment and that do not require a time-urgent response are not Operational Emergencies. Note that the initiating events described below are not all-inclusive. Other initiating events that warrant categorization as operational emergencies shall be included in site/facility-specific procedures.

d) Discuss the concept of emergency public information (EPI) and the different roles of the Department's Public Relations Office and the Joint Information Center (JIC) in disseminating information in an emergency.

EPI

The ability to provide the public, media and DOE employees with accurate and timely information is based on an effective EPI program. To be effective, emergency public information should be coordinated with onsite and offsite Federal, state, local and tribal Emergency Response Organizations (ERO). The EPI program provides the means for a facility to coordinate the timely exchange of information among representatives from DOE and other organizations. This coordination is critical to prevent dissemination of confusing, conflicting, and erroneous information.

Departmental and emergency response credibility is enhanced through an effective emergency public information program, which is based on a day-to-day public information operation that can be expanded for an emergency response. This capability to expand is developed in cooperation with onsite and offsite organizations through the detailed planning and coordination of plans, procedures, education, and training.

JIC

The JIC accommodates the news media; coordinates news conferences; provides media kits and news releases to the media; and assists the JIC manager in all matters pertaining to interaction with the media. Serves as an extension of the JIC Manager by tracking inquiries between the EOC and the JIC; keeping the public and media inquiry teams updated on emergency events; ensuring that the JIC Manager has adequate review of information prior to

media briefings; ensuring that communications are maintained with the EOC; and remaining in direct communication with the JIC Manager.

Additional information available at DOE G151.1-1 V4-4 Emergency Public Information <http://www.directives.doe.gov>

e) Discuss the concept and define the components of the Incident Command System in the context of on-site and off-site emergency response.

The Incident Command System is the model tool for control, command, and coordination of a emergency response and provides a means to coordinate the efforts of individual agencies as they work toward the common goal of stabilizing the incident and protecting life, property, and environment.

f) Discuss the involvement of external agencies in the Department's emergency management system.

Agencies and organizations responsible for protecting the public and the environment within the vicinity of the facility/site should be identified. These agencies and organizations should be contacted to determine authorities, responsibilities, notification procedures, and information necessary in the event of an emergency at the DOE facility. Requirements identified during the Hazards Survey and/or Hazards Assessment process should be used to help determine all necessary local, state and Federal interfaces.

Additional information available at DOE G151.1-1 V3-2, Off-site Response Interfaces <http://www.directives.doe.gov>

g) Describe the contents, the requirements for, and where each of the following types of emergency plans can be located on-site:

- **Site Emergency Plan**
- **Facility Emergency Plan**
- **Building Emergency Plan**
- **Security Emergency Plan**
- **Fire Prevention/Suppression Plan**
- **Worker Safety Plan**

The responses to this competency statement will be site-specific. Contact your local emergency management team for information.

10. A Senior Technical Safety Manager shall have working level knowledge of conduct of operations

a) Describe the reason for implementing conduct of operations at DOE facilities.

The implementation of conduct of operations requirements and guidelines will result in improved quality, uniformity of operations and a safe operational environment.

b) Discuss the requirements for implementing conduct of operations at DOE facilities and the associated impact on safety and efficiency of operations.

Contractors shall use conduct of operations in the review and development of existing and proposed directives, plans, or procedures relating to the conduct of operations at DOE facilities.

A graded approach shall be used in the application of the guidelines to ensure that the depth of detail required and the magnitude of resources expended for operations are commensurate with each facility's programmatic importance and potential environmental, safety, and/or health impact.

Conformance with conduct of operations requirements shall be documented. However, it is not necessary to develop a separate manual or plan. As a minimum, a document (e.g., a matrix) shall be prepared in coordination with the Head of the Field Element and the cognizant Program Secretarial Official(s) that:

- Indicates whether a specific guideline applies to a facility;
- Indicates where and how each of the guidelines (Attachment I) of the Order are applied within the contractor's existing policies and procedures; and
- Identifies any deviations or exemptions from the guidelines.

This document shall, as a minimum, be approved by the Head of the Field Element.

c) Discuss the purpose and describe the roles and responsibilities of the Senior Technical Safety Manager in implementing DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities.

Ensure that adequate contractor plans, procedures, and programs are in place and assess the effectiveness of their implementation at sites under their jurisdiction, consistent with the provisions of the Order.

Ensure that DOE facility representatives are assigned responsibility for a major facility or group of lesser facilities, and oversee the day-to-day conduct of operations at these facilities in accordance with the requirements of the Order and the direction received from the Program Manager.

Approve documentation prepared by the contractor to demonstrate conformance to the guidelines in Attachment I of the Order.

d) Discuss the concept of graded approach and how it applies to the implementation of conduct of operations.

A graded approach ensures that the depth of detail required and the magnitude of resources expended for operations are commensurate with each facility's programmatic importance and potential environmental, safety, and/or health impact.

e) For each of the eighteen chapters in Attachment I to DOE Order 5480.19, conduct of Operations Requirements for DOE facilities, describe in detail how each activity contributes to an effective and safe operational environment.

Chapter 1 - Operations Organization and Administration

This chapter describes the administrative controls and practices that, when implemented fully, result in an effective and safe operational environment. Beginning with DOE facility policies that describe the philosophy of standards of excellence under which the facility is operated and establish clear lines of responsibility for normal and emergency conditions, other principles are suggested for the control of operations. These are: establishing written standards for operations, providing adequate resources to permit effective implementation, periodically monitoring and assessing performance, and holding personnel accountable for their performance.

These administrative controls put into place a system whereby operational effectiveness and safety can be measured and analyzed. The development and implementation of corrective actions follows. Continuous improvement in efficiency and safety is thus achieved in accordance with total quality management principles.

Chapter 2 - Shift Routines and Operating Practices

This chapter describes some important aspects of routine shift activities and watch standing practices that promote the professional conduct of operations personnel and result in meeting DOE and facility management expectations for operator performance. Professional conduct and good watch standing practices result in appropriate attention to facility conditions, a necessary part of maintaining a safe and effective operational environment. Key elements are: effective equipment monitoring to detect abnormal conditions or adverse trends, notifying supervisors promptly of unusual or unexpected situations, understanding equipment status and operational authority, and following proper industrial safety, radiological protection (if applicable) and quality assurance practices.

The chapter specifically provides guidelines for status practices, safety practices, operator inspection tours, use of round/tour inspection sheets, personnel protection, response to indications, resetting protective devices, load changes, authority to operate equipment, shift operating bases, and potentially destructive written material and devices.

Chapter 3 - Control Area Activities

This chapter recognizes the control area or control room as the most critical facility operating base and the coordination point for all important facility activities. It stresses principles involving limited control area access, professional behavior of personnel in the control area, monitoring of main control panels, control operator ancillary duties, and operation of control

area equipment. Errors and unnoticed equipment problems if formality and attention to detail is not practiced by operators in the control room.

Chapter 4 - Communications

This chapter describes the important aspects of a plant program for audible communications and emphasizes that accurate communications are essential for the safe and efficient operation of facilities. Audible communications are used to transmit operating and emergency information within the facility. Examples are oral (face-to-face), telephone, radio, public address (page) announcements, sound powered phones, and special sounds (horns and bells). Guidance provided includes the practice of repeating back instructions to ensure accurate transmission and receipt of verbal instructions, use of standardized terminology, and use of a phonetic alphabet. Inadequate communication is a common root cause behind operator error. On the softer side, personnel morale, which can indirectly affect facility efficiency and safety (consider incidents of sabotage, equipment tampering, and malicious compliance), depends on open, honest and clear communications.

Chapter 5 - Control of On-Shift Training

The guidelines of this chapter relate to control of training activities by operations personnel. On-shift training should be conducted so that the trainee satisfactorily completes all of the required training objectives and receives maximum learning benefit from this experience without unduly affecting normal operations. Facility operation by personnel under instruction should be carefully supervised and controlled to avoid mistakes in operations by unqualified personnel and to use trainee's time effectively. These controls are therefore necessary to maintain safe and efficient operation of the facility during the conduct of hands-on training. The following are key elements: adherence to formal training programs, use of instructors that are qualified themselves on the subject equipment, supervision and control of trainees by qualified operators, operator qualification program approval, formal training documentation, suspension of training during abnormal or accident conditions, and establishing a maximum number of trainees at one time.

Chapter 6 - Investigation of Abnormal Events

This chapter covers important aspects of the abnormal event investigation program. Abnormal events do occur and when they do, they often cause an impact on the safe and efficient operation of the affected facilities. Therefore a program for the investigation of abnormal events should ensure that facility events are thoroughly investigated to assess the impact of the event, to determine the root cause of the event, to ascertain whether the event is reportable to DOE (per DOE O232.1) and to identify corrective actions to prevent recurrence of the event. As future events are prevented through successful implementation of this program, the safe and efficient operation of the facility is improved.

Chapter 7 - Notification

This chapter provides guidelines to ensure uniformity, efficiency, and thoroughness of notifications that support fulfillment of DOE requirements consistent with DOE O232.1. Proper notifications of abnormal or unusual events contributes to safe and efficient operation of the facility in a couple of ways. The first is that the notification results in the involvement of a larger pool of people whose knowledge can help stabilize and resolve the immediate situation at hand. The second is that being trained to follow a rigorous notification process

ensures that vital information, needed to analyze and prevent future recurrence, is not overlooked.

Chapter 8 - Control of Equipment and System Status

This chapter provides an overall perspective on control of equipment and system status. Control of equipment and system status contributes to safe and efficient facility operations by ensuring that an adequate “safety envelope” exists to authorize and perform work. A facility’s safety envelope is defined by the proper operation and configuration of a set of equipment considered vital to a safe operating environment. This equipment is termed “vital safety equipment.” If a piece of equipment fails or is shut down for maintenance, this fact needs to be recorded so that affected operations can be terminated or prevented until the equipment or system is restored. In the case where redundant equipment exists that could be operated to maintain the safety envelope for continued operations, its status must be known in order for it to be relied upon. Temporary modifications must also be tracked for the same reasons.

Chapter 9 - Lockouts and Tagouts

This chapter describes the important elements of a Lockout/Tagout Program and is intended to meet the requirements of 29 CFR 1910. A safe and efficient operational environment is maintained by providing a method for equipment status control through component tagging or locking which should protect personnel from injury, protect equipment from damage, maintain operability of plant systems, and maintain the integrity of the physical boundaries of plant systems. Appropriate and proper use of tags and locks prevents inadvertent operation of equipment when there is a potential for equipment damage or personnel injury during equipment operation, servicing, maintenance, or modification activities.

Chapter 10 - Independent Verification

This chapter describes the important aspects of an independent verification program which when implemented should provide a high degree of reliability in ensuring the correct facility operation and the correct position of components such as valves, switches, and circuit breakers. This is important to the safe and efficient operation of a facility because independent verification recognizes the human element of component operation; that is, any operator, no matter how proficient, can make a mistake. Thus when mistakes are found and corrected before an operation takes place, safety and efficiency are improved.

Chapter 11 - Logkeeping

This chapter describes the features needed in the operation logs to ensure they are properly maintained. Operations logs should be established for all key shift positions and should contain a narrative of the facility’s status and all events as required to provide an accurate history of facility operations. Proper logkeeping is essential to the safe and efficient operation of a facility because it provides the data necessary for the reconstruction of abnormal or unusual events. When the data is properly analyzed and corrective actions are taken, subsequent recurrence of the event should be prevented. Logkeeping also promotes personal accountability and improved communication of information about the facility’s status among operating personnel.

Chapter 12 - Operations Turnover

This chapter describes the important aspects of a good shift turnover. The comprehensive transfer of information pertinent to the operation of the facility is vital to safe and efficient operations, as evidenced by a historically high error rate associated with poor shift turnovers resulting from improper reviews of logs, unclear communications and neglecting to discuss key operating parameters and status. Safe operations also depend on operating personnel being fit for duty. Therefore, it is also the responsibility of the off-going person to determine this by looking for evidence of sickness with corresponding degradation of mental or physical ability to do the job due to the sickness itself and/or the effects of medication the person might be taking. Other compromising conditions such as drug and alcohol abuse should also be considered among the things to look for.

Chapter 13 - Operations Aspects of Facility Chemistry and Unique Processes

This chapter describes the important aspects of operations involving chemistry and unique processes and their relationship to safe and efficient facility operation. Operational monitoring of facility chemistry or unique process data and parameters should ensure that parameters are properly maintained. Proper monitoring will identify problems before components or safety are adversely affected. Operating personnel must be knowledgeable about the chemicals and processes they are working with and depending upon so that they can detect and correct off-normal parameters in a timely manner.

Chapter 14 - Required Reading

This chapter describes an effective required-reading program. Such a program contributes to facility safety and efficiency by ensuring that appropriate individuals are made aware of important information that is related to job assignments. Procedure changes, equipment design changes, related industry and in-house operating experience information, and other information necessary to keep operations department personnel aware of current facility activities are examples of the kind of useful information that should be made available to keep operating personnel current.

Chapter 15 - Timely Orders to Operators

This chapter describes the key features of an effective operator orders program. This contributes to safe and efficient operation by providing a means for communicating current, short-term information and administrative instructions to operations personnel. This becomes necessary to accommodate the changing needs and requirements of DOE facility operations. For example, orders could include instructions on the need for and performance of specific evolutions or tests; it could also include work priorities, announcements of policy information, and administrative information. Typical information includes special operations, administrative directions, special data-collection requirements, plotting process parameters, and other similar short-term matters.

Chapter 16 - Operations Procedures

This chapter describes the important aspects of operations procedure development and use. Operations procedures should provide appropriate direction to ensure that the facility is operated within its design basis and should be effectively used to support safe operation of the facility. When operations personnel adhere to the policy to follow approved, properly written procedures, their operational performance should always be consistent and safe.

Chapter 17 - Operator Aid Postings

This chapter describes the important aspects of an operator aid program. Facility operator aids (information posted for personnel use) should provide information useful to operators in performing their duties and thus provide an important function in the safe operation of the facility, provided that they are kept current and do not conflict with any other controlled procedure or information. Examples are copies of procedures (portion or pages thereof), system drawings, handwritten notes, information tags, curves, and graphs.

Chapter 18 - Equipment and Piping Labeling

This chapter describes the important aspects of a labeling program. A well-established and maintained equipment-labeling program should help ensure that facility personnel are able to positively identify equipment they operate. It will enhance training effectiveness, help reduce operator and maintenance errors resulting from incorrect identification of equipment, and reduce personnel radiation and other hazardous material exposure as operators spend less time identifying components.

f) Describe the types of operations where formal conduct of operations apply.

Operations where formal conduct of operations apply range from large, permanent DOE test or production facilities to small research or testing facilities. Experience has shown that the better operating facilities have well-defined, effectively administered policies and programs to govern the activities of the operating organization. Formal conduct of operations procedures are prepared to assist facilities in the review and development of programs important to operations. Not all activities in the operations area are addressed. Some areas, such as the technical aspects of specific equipment operation, are not included because they involve facility-specific situations requiring unique direction. However, conduct of operations should support or complement performance in the areas not addressed by any other formal safety effectiveness program.

g) Discuss how the self-assessment process is applied to ensure safe operations.

The same basic process for assessing the contractor or another organization is used for performing self-assessments except that the focus is inward for the purpose of self-improvement per Total Quality Management concepts. Specifically, the process should include: a review of past assessments and actions taken/completed to resolve findings, development of an assessment plan, making observations, conducting interviews, reviewing program documents, pulling the string, and assembling and reporting findings. The following describes some principles involved with performing independent (self-) assessments:

- A process of planned and periodic independent assessments should be established and implemented by an independent assessment organization. Independent assessments should focus on improving items and processes by emphasizing line organization's achievement of quality.
- Personnel performing independent assessments should act in a management advisory function. Their responsibilities are to monitor work performance, identify abnormal

- performance and precursors of potential problems, identify opportunities for improvement, report results to a level of management having the authority to effect corrective action, and verify satisfactory resolution of problems.
- Personnel performing independent assessments should be technically knowledgeable and focus on improving the quality of the processes that lead to the end product.
 - Personnel performing independent assessments should not have direct responsibilities in the area they are assessing.
 - Independent assessments should be conducted using criteria that describe acceptable work performance and promote improvement.
 - Scheduling of assessments and allocation of resources should be based on the status, risk, and complexity of the item or process being assessed. Scheduling should be flexible and additional attention should be given to areas of questionable performance.
 - Assessment results should be tracked and resolved by management having responsibility in the area assessed. Follow up review of deficient areas should be initiated as necessary.
 - Responses to assessments should include the following, as applicable: action to correct the deficiency; cause identification; actions to prevent recurrence; lessons learned; and actions to be taken for improvement.

Additional information available at <http://cted.inel.gov/cted/rfhtm/gtbsgch6.htm>

h) Discuss the responsibilities, authorities, and implementation requirements for DOE O430.1A, Life-Cycle Asset Manager, at defense nuclear facilities.

Responsibilities and authorities

- Serve as contracting officers for site contracts and all other contracts and financial assistance agreements executed by Field Elements. The contracting officer will ensure that applicable requirements found in this Order are included in contracts and subcontracts. The contracting officer shall work with each contractor to document in formal agreement and/or contract the establishment and use of agreed upon performance-based objectives, measures and expectations for these requirements.
- Prepare initial budget requests and planning for physical assets.
- Obtain necessary approvals for projects from the sponsoring Program Offices including mission need and project baselines, as appropriate.
- Oversee projects delegated to them and oversee those projects executed by contractors to verify requirements are met.
- Notify the Office of Field Management of excess real property that has a significant remaining useful life.
- Verify adequate management of inactive and excess facilities until a reuse is found or the real property is disposed of.
- Lead the verification of an efficient, economic approach to physical asset management in coordination with Program Offices and the Office of Field Management.
- Participate in the DOE certification program for real estate specialists.
- Participate in the Life-Cycle Asset Management Planning and Analysis Group.
- Support the strategic systems critical decision process.

- Support the Program Offices in development of performance criteria for program performance objectives and lead in implementing program criteria.
- Lead in negotiating the performance criteria and measures with the contractor to meet the defined performance objectives.
- Lead in evaluating the performance of the contractor against the performance measures in the contract.
- Are accountable to the Program Offices and the landlord Program Office for contractor performance.
- Coordinate all review and external oversight activities of the contractors.
- With General Counsel and the Office of Field Management, participate in the DOE's utility intervention process.
- When project size and complexity warrants, conduct independent design, scope, and cost reviews.
- Develop a clear definition of roles, responsibilities and liabilities for all stakeholders for leased facilities, to ensure safety and protection of workers, the public and the environment.

Requirements

This order establishes the requirements for controlling the conduct of maintenance activities. Maintenance work is controlled at the appropriate level by specialized procedures that, when properly written, provide the necessary interface with proper conduct of operations, such as, scheduling work on the Plan of the Day, shift manager approval to commence work, establishing the proper lockout/tagout, updating system status to reflect the activity and unavailability of the equipment. Preventive maintenance also contributes to identifying and correcting potential problems and thus preventing unexpected events from impacting mission operations.

Additional information available at <http://cted.inel.gov/cted/rfhtm/gtbsgch6.htm>

11. A Senior Technical Safety Manager shall have a working level knowledge of waste management principles and practices.

a) Define the following terms:

- **Low-level waste**
- **High-level waste**
- **Transuranic waste**
- **Mixed waste**

Low-level waste

Low-level waste is material having no economic value and contaminated with radioactive material that is not classified as high-level waste, transuranic waste, spent nuclear fuel or byproduct material as defined in Section 11e(2) of the Atomic Energy Act, as amended. Test specimens of fissionable material irradiated only for research and development and not for production of power or plutonium may be classified as low level waste provided the concentration of transuranic activity (i.e. americium, plutonium, etc.) is less than or equal to 100 nCi per gram.

High-level waste

Material generated by chemical reprocessing of spent fuel and irradiated targets. High-level waste contains highly radioactive, short-lived fission products, hazardous chemicals, and toxic heavy metals. High-level waste is usually found in the forms of a liquid, a solid saltcake, a sludge, or a dry powdery calcine.

Transuranic waste

Radioactive waste material without regard to source or form that, at the end of institutional control periods is contaminated with alpha-emitting radionuclides having atomic numbers greater than 92 (Uranium) and half-lives greater than 20 years in concentrations above 100 nCi per gram of waste matrix at time of assay and are not co-mingled with RCRA constituents.

Transuranic waste mixed

Radioactive waste material without regard to source or form that, at the end of institutional control periods is contaminated with alpha-emitting radionuclides having atomic numbers greater than 92 (Uranium) and half-lives greater than 20 years in concentrations above 100 nCi per gram of waste matrix at time of assay and are co-mingled with RCRA constituents.

b) Discuss the Department's policy regarding the handling and management of waste as described in DOE O435.1, Radioactive Waste Management.

DOE radioactive waste management activities shall be systematically planned, documented, executed, and evaluated. Radioactive waste shall be managed to:

- Protect the public from exposure to radiation from radioactive materials.
- Protect the environment.
- Protect workers.
- Comply with applicable Federal, state, and local laws and regulations.

All radioactive waste shall be managed in accordance with the requirements in DOE M 435.1-1, Radioactive Waste Management Manual.

DOE, within its authority, may impose such requirements, in addition to those established in this Order, as it deems appropriate and necessary to protect the public, workers, and the environment, or to minimize threats to property.

c) Discuss the Department's performance objectives and performance assessment requirements as outlined in DOE O435.1, Radioactive Waste Management.

Performance Objectives

Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:

- Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.
- Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.
- Release of radon shall be less than an average flux of 20 pCi/m²/s (0.74 Bq/m²/s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.

Performance Assessment

A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.

Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials. Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults. The performance assessment shall include a sensitivity/uncertainty analysis. Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA). For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources. For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for

chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.

d) Discuss the Department's policies on waste management, including:

- **Generation reduction**
- **Segregation**
- **Minimization**
- **Pollution prevention**
- **Disposal**

Generation reduction

All DOE-low-level waste generators shall establish auditable programs (goals, incentives, procedures, and reports) to assure that the amount of low-level waste generated and/or shipped for disposal is minimized.

Segregation

To the extent practical, waste shall be segregated by type (sludge, salt, high activity, and low activity) to make accessibility for future processing easier.

Minimization and Pollution Prevention

Waste minimization and pollution prevention is implemented for radioactive waste management facilities, operations, and activities to meet the requirements of Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, and Executive Order 13101, Greening the government through Waste Prevention, Recycling, and Federal Acquisition.

Disposal

Disposal policy dictates that radioactive waste is disposed in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis. Reviewing specific transuranic or low-level waste documentation including the performance assessment and composite analysis, or appropriate CERCLA documentation, prior to forwarding them to Headquarters for approval, and obtaining and ensuring that the facility is operated in accordance with the disposal authorization statement.

e) Discuss how the following Acts apply to and impact the Department's waste management programs.

- **Federal Facilities Compliance Act (FFCA)**
- **Pollution Prevention Act of 1990 (PPA)**
- **Superfund Amendment Reauthorization Act (SARA)**

FFCA

The Federal Facilities Compliance Act of 1992 establishes that Federal facilities do not have sovereign immunity from state enforcement of state environmental laws under the solid and hazardous waste provisions of the Solid Waste Disposal Act (SWDA). Thus, Federal facilities are obligated to pay fines and penalties assessed by states. Additionally, provisions of the Act give EPA broader enforcement authority at Federal facilities. Specific to the DOE, the Act includes a three-year moratorium on enforcement of storage provisions for mixed hazardous and radioactive wastes. The Act created a new mixed waste provision

requiring reports on the national inventory of all mixed-waste on a state-by-state basis and on the nation's inventory on mixed waste treatment capacities and technologies. As a result of these reporting requirements RFETS has developed, obtained approval from the state, and committed to compliance with the Site Treatment Plan (STP). The STP addresses technologies and capacities to treat mixed waste to meet the Land Disposal Requirements (LDR).

The Act limits the civil liability of Federal employees acting within the scope of their official duties, however increases the potential criminal liability of Federal employees

PPA

The PPA states, "the Congress hereby declares it to be the national policy of the United States that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner."

SARA

In 1986, Congress enacted significant revisions to CERCLA through the SARA. SARA simply made CERCLA bigger and more complex.

Additional information available at <http://cted.inel.gov/cted/rfhtm/gtbsgch3.htm>

f) Discuss the general requirements of the RCRA as it applies to hazardous and mixed waste.

RCRA is a regulatory statute designed to provide cradle to grave control of hazardous waste by imposing management requirements on generators and transporters of hazardous wastes and upon owners and operators of treatment, storage and disposal facilities. RCRA applies mainly to active facilities, and does not address the serious problem of abandoned and inactive sites. RCRA amended the Solid Waste Disposal Act therefore; the two terms are sometimes used synonymously.

Subtitle A of RCRA declares that, as a matter of national policy, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible, and land disposal should be the least favored method for managing hazardous wastes. In addition, all waste that is generated must be handled so as to minimize the present and future threat to human health and the environment.

g) Discuss the process for determining if waste is classified as hazardous.

Hazardous waste are those wastes that exhibit the characteristics of being corrosive, ignitable, reactive, toxic, or are listed in 40 CFR 261. Mixed hazardous waste is waste containing both radioactive and hazardous components as defined by the Atomic Energy Act of 1954 and RCRA, respectively.

h) Describe the general requirements and issues associated with the transportation of radioactive wastes.

Type A Radioactive Material Packagings.

In addition to packagings authorized by the Hazardous Materials Regulations, each person who offers for transportation a Type A quantity of radioactive materials also may use a commercially procured Type A packaging, a package qualified as a Type A packaging per Department of Transportation (DOT) Specification 7A (49 CFR 178) by an evaluation and testing program approved by the Headquarters Certifying Official, or a Type B packaging certified by the Headquarters Certifying Official or Nuclear Regulatory Commission (NRC). Packagings tested by and purchased from commercial sources do not require retesting by DOE contractors; however, the required documentation on design, testing, and use must be in the possession of the user.

Type B or Fissile Radioactive Material Packagings

In addition to packagings authorized by the Hazardous Materials Regulations, each person who offers for transportation a Type B and/or fissile quantity of radioactive materials also may use a packaging certified by Headquarters Certifying Official or NRC. NRC-certified Type B and fissile packagings that have a current Certificate of Compliance may be used by DOE and DOE contractors only under the conditions specified in the Certificate, and only after DOE is registered with NRC as a user. Packagings that have a current DOE Certificate of Compliance issued by the Headquarters Certifying Official may be used by DOE and DOE contractors only under the conditions specified in the Certificate.

Plutonium Packagings.

Each person who offers plutonium for transportation in excess of 20 Curies per package shall use a packaging approved by the Headquarters Certifying Official or the NRC.

Each person who offers Type B quantities of plutonium for air transportation shall use a packaging approved by the Headquarters Certifying Official or the NRC.

Additional information available in DOE O460.1A, Packaging and Transportation Safety at <http://www.directives.doe.gov>

12. A Senior Technical Safety Manager shall have a working level knowledge of maintenance management as it related to safety.

a) Using DOE Order 4330.4B, Maintenance Management Program, explain the following:

- **The DOE's role in the oversight of contractor maintenance operations**
- **The intent of maintenance management programs**
- **The Department's policy and objectives for maintenance management**
- **The responsibilities and authorities for maintenance management programs**

Periodic inspections of structures, systems, components, and equipment, particularly those important to the safe and reliable operation of a facility, shall be performed to determine whether deterioration is taking place and to identify and address technical obsolescence that threatens performance, safety, or facility preservation. Where the potential is identified for any event or condition to significantly affect safety margins, a formal program for resolving the problem shall be documented and implemented.

The intent of maintenance management programs is to sustain property in a condition suitable for it to be used for its designated purpose and includes preventive, predictive, and corrective (repair) maintenance.

It is the Department's policy that:

- The maintenance management program for all DOE property be consistent with this Order and that all DOE property be maintained in a manner which promotes operational safety, worker health, environmental protection and compliance, property preservation, and cost-effectiveness while meeting the programmatic mission.
- Structures, systems, and components that are important to safe operation shall be subject to a maintenance program in order to meet or exceed their design requirements throughout their life.
- Periodic inspection of structures, systems, components, and equipment be performed to determine deterioration or technical obsolescence which threaten performance and/or safety.
- Primary responsibility, authority, and accountability for the direction and management of the maintenance programs for all property reside with the line management assigned direct programmatic responsibility.

The objectives for maintenance management are:

- Develop a cost-effective and efficient maintenance program for all DOE property that is consistent with DOE's mission, safety and health, reliability, quality, and environmental protection objectives.
- Establish a review and analysis capability for evaluation of maintenance program performance and effectiveness.
- Ensure the reliability, safety, and operability of structures, systems, and components.
- Ensure compliance with environmental, safety, and health standards.
- Ensure that the responsibility, authority, and accountability for maintenance are clearly defined and appropriately assigned.

- Ensure that, where maintenance requirements or accepted maintenance standards cannot be met, such instances are appropriately documented and acknowledged by line management.
- Ensure that sufficient resources are budgeted in a timely manner to accomplish the maintenance program.
- Ensure that effective programs are in place to evaluate and measure property condition.
- Ensure that a graded approach is taken by the line management in the development and implementation of maintenance programs.
- Ensure that the maintenance of DOE property meets the equivalent guidelines, as appropriate, as required for the conduct of maintenance in commercial industry.

The responsibilities and authorities of managers of field elements for maintenance management programs are:

- Ensure that adequate maintenance management programs and procedures are in place and implemented at sites under their jurisdiction and that the programs and procedures are consistent with the provisions of this Order.
- Review the maintenance backlog and establish plans to ensure the backlog remains consistent with DOE goals and objectives.
- Ensure that reviews and appraisals of contractor maintenance programs are performed to assess proper and consistent implementation of this Order as specified in the Site Maintenance Plan/Maintenance Implementation Plan.
- Review and approve the Program Implementation and Baseline Activities part of the Site Maintenance Plans, and any subsequent modifications to those plans.
- Review and approve contractor-generated nuclear facility Maintenance Implementation Plans and any subsequent modifications to those plans.
- Through the Contracting Officer, ensure that applicable contracts contain clauses that meet the policy and objectives of this Order.
- Submit to Field Management and the appropriate Heads of Headquarters Elements, the Site Maintenance Action Plan part of the Site Maintenance Plans.

b) Discuss the requirements for the control and integration of management and operating contractor and subcontractor personnel in maintenance activities.

Contractor and subcontractor personnel who perform maintenance or modifications on facility systems should be trained and qualified for the work they are to perform. These personnel should also receive general employee training and specific training in appropriate facility administration, safety, quality control, and radiation protection procedures and practices. Adequate time should be provided for this training. Recognition should be given to individual needs and previous training and experience. Experienced personnel could be allowed to bypass training by proving proficiency through examination and demonstration. Contractor and subcontract personnel who are not fully trained and qualified for the job to be performed should be continually supervised by qualified personnel. Contractor and subcontract personnel should perform maintenance under the same controls as and to the same high work standards expected of facility maintenance personnel. Contractor and subcontract managers and supervisors should be held accountable for the work performance of their personnel. Facility supervisors should review the work of these personnel during

preparation for work, at the job site, and during post-maintenance testing and acceptance inspections to the extent needed to enforce these requirements. Use of subcontractor personnel to perform routine facility maintenance should not normally be relied upon to the detriment of the development of permanent staff expertise.

c) Discuss the graded approach process by which Department line management determines an appropriate level of coverage by facility maintenance management personnel.

By graded approach, DOE intends that the level of analysis, documentation, and actions necessary to comply with a requirement in the Order are commensurate with:

- The relative importance to safety, safeguards, and security
- The magnitude of any hazard involved
- The stage of the facility's life cycle
- The programmatic mission of the facility
- The particular characteristics of the facility
- Any other relevant factor

d) Discuss how maintenance activities interface with the following as it relates to safety.

- **Conduct of operations**
- **Quality assurance**
- **Configuration management**
- **Safety structures, systems, and components**
- **Authorization basis**
- **Counterfeit/suspect items**

Conduct of Operations

Maintenance activities incorporate the concepts included in Conduct of Operations with matters related to the maintenance program. For example, the guidance provided for maintenance procedures is consistent with the procedure direction provided in DOE Order 5480.19. Additionally, the cultural aspects of Conduct of Operations is easily integrated into maintenance management. These are best business practices that should result in the high standard of maintenance performance required to support safe and reliable operations.

Quality Assurance

The concepts identified in DOE O414.1, Quality Assurance were used in the development of the Maintenance Management Program described in DOE Order 4330.4B. The quality assurance requirements stipulated were established and integrated into the Maintenance Management Program Order to ensure that risks and environmental impacts were minimized and that safety, reliability and performance were maximized through the application of effective management systems commensurate with the risks posed by the facility and its maintenance activities. Specifically, the principles of each quality assurance criteria, in the areas of management, performance, and assessment, were evaluated for inclusion into each Maintenance Management Program Element.

Configuration management and safety structures, systems, and components

DOE Order 4330.4B does not provide technical guidance on how the establishment and or forecasting of degradation of equipment, structures, systems, or components. The configuration management process address material condition and aging management (MCA). MCA develops analytical methods and testing techniques that can be used to meet the requirements of the maintenance program.

Configuration management programs also interfaces with the maintenance program through the change control and document control elements, which address control of hardware and procedure changes. The main interface is through the work control process of the maintenance program that manages and sequences maintenance activities in the field. Another important interface exists between the preventive and predictive maintenance activities and the performance monitoring function of the assessment element. Configuration control is maintained by ensuring that systems and equipment are restored to their original condition following maintenance.

Authorization Basis

The scope and content of safety analysis reports includes maintenance activities. The contractor takes the initiative to propose design, construction, operational, and maintenance commitments to ensure facility safety. For existing facilities, the current safety basis must include those considerations, constraints, and evaluation models needed for continuing engineering, maintenance, and management controls.

Counterfeit/Suspect/Items

There is a program in the maintenance management program that ensures that deficient, nonconforming, counterfeit, or suspect items detected in the maintenance are resolved in an effective and timely manner. Nonconforming, counterfeit, and suspect items are identified with tags or labels and controlled to prevent unauthorized use.

13. A Senior Technical Safety Manager shall have a working level knowledge of formal configuration management as it relates to safety.

a) Discuss the roles and responsibilities of the Senior Technical Safety Manager related to implementing configuration management programs.

The Senior Technical Safety Manager should review the configuration management program to ensure that the program accomplishes the following:

- establishes and documents the configuration baseline;
- institutes a configuration control system to ensure the review, approval, and documentation of changes; and
- institutes a program of configuration audits to comply with the form and intent of the configuration

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

Configuration management is a management process that ensures that consistency is maintained among the requirements, the physical and functional configuration and the documentation, particularly as changes are made. Configuration management is applied to the important features of nuclear and non-nuclear facilities, projects, operations, experiments, and activities commensurate with their relative importance to health, safety, environment, and mission.

Additional information available in the Project Management Handbook, Chapter 18, Configuration Management at <http://www.doeal.gov/pfmd/chapter18.pdf>

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

Important features of the configuration management program are systems, structures, components (SSC), computer hardware and software, communication networks, instructions and procedures, and designated physical or administrative items whose failure to satisfy requirements could lead to loss of life or health; noncompliance with laws, regulations, or orders; violations of safeguards or security requirements; or significant loss of production or research capability.

d) Describe a typical configuration management process.

Configuration management should be consistent with the quantity, size, scope, and complexity of the project involved. Complex projects may require a highly organized configuration management system, while less complex projects may require nothing more than the control of the applicable technical specification. The configuration management process should be tailored to the specific project and to particular products. The selection of a facility, equipment, or other item for formal configuration management is determined by the need to control its inherent characteristics or to control its interface with other items. Initially, performance oriented functional requirements should be used for configuration

identification. Where appropriate, these requirements may be allocated to selected items that are part of a higher level item. Finally, a detailed design should prescribe build to requirements and associated quality assurance provisions. This identification should be the basis for the preparation of technical, administrative, and management documents, (e.g., technical reports and spare parts) that concern or depend upon configuration. A permanent copy of the controlled identification documents should be maintained throughout the life cycle, beginning with the initial baseline documentation and including proposed and approved changes from those baselines. Configuration control must be exercised on a basis appropriate to the management level concerned and to the stage in the life cycle. All affected project activities, such as engineering, logistic support quality assurance, maintenance, and procurement need to be involved in evaluating proposed changes in the configuration of an item throughout its life cycle. This would normally be accomplished through a Configuration Control Board.

Additional information available in the Project Management Handbook, Chapter 18, Configuration Management at <http://www.doeal.gov/pfmd/chapter18.pdf>

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

The Configuration Management Program should identify and define key programmatic and organizational interfaces. Defining effective and efficient interfaces is critical to the workability of a configuration management program. Program interfaces are those relationships established to ensure that identification and integration of the essential facility programs effectively support and maintain consistency among the design requirements, documents, and hardware. Program interfaces include those internal to the configuration management program, such as the interface between document control and change control, and those between the configuration management program and programs such as design control, project control (DOE Order 4700.1, Project Management System), maintenance (DOE Order 4330.4B, Maintenance Management Program), quality (DOE O414.1A, Quality Assurance), and any program or mechanism involved in defining, evaluating, and documenting changes. As the fundamental approach to implementing the configuration management program is to identify, upgrade, and integrate these existing programs, the program management element should clearly identify these programmatic interfaces. Roles, responsibilities, and relationships among the program elements and functions should be defined and documented. Relationships to other programs that interface with the configuration program should also be clearly defined and documented.

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
- Assessments

Program Management

The program management element of a configuration management (CM) program coordinates program development and implementation and ensures overall program effectiveness. This element leads the development of the other CM program elements. Development of an effective CM program should be initiated promptly, where needed, to address known issues, to improve compliance with various DOE Orders, and to produce the benefits of improved safety, reduced errors, and increased efficiency. Configuration management program definition and development necessitates the establishment of local CM policy, philosophy, requirements, and strategies for development and implementation.

Configuration management program development activities should be performed in a phased manner and should include milestone. Initially development activities should focus on preparation of CM program directives and plans. The CM program criteria indicate that the CM program plan should be provided to DOE for review within 18 months of initiation of planning. Development of the CM program elements begins after CM program plan concurrence and should be completed within 2 to 3 years. Program implementation should be initiated as each element is developed, with full implementation of the five CM program elements, including satisfactory post-implementation assessment, within 5 years. Adjunct programs such as design reconstitution could extend beyond 5 years. Once fully implemented the CM program functions should be maintained throughout the life of the facility.

Document Control

The document control element ensures that documents are maintained current with the physical and functional configuration and the requirements. Documents may include paper copies (e.g., drawings, procedures, and manuals), electronic media (e.g., word processor files and computer databases), and photographic media (e.g., microfilm, microfiche, and photographs).

The document control process updates documents to reflect changes in a timely manner, distributes them appropriately, tracks documents, including change status; and maintains documents readily retrievable and available to personnel. Only the latest approved revisions of documents are used by personnel to perform work or make technical decisions. The types of documents included in CM are determined and document owners are established. The document owners are responsible for the technical content of the documents and for establishing priorities for revision and retrieval. Within each document type, the specific documents to be included in document control are identified for each SSC. The original or master copy of these documents is stored and protected. Retention times are established consistent with the needs of the document owners and the users.

Change Control

The change control element ensures that proposed changes are properly identified, reviewed, approved, implemented, validated (tested or inspected), and documented prior to use. The objective of the change control process is to ensure that proposed changes are consistent with the applicable requirements and are accurately reflected in associated documentation. To accomplish this, the mechanisms or work processes that can lead to temporary or permanent change are identified and controlled and integrated with the requirements and document

control elements. Changes may include hardware changes, maintenance changes, process changes, operational changes, temporary modifications, document-only changes, and computer software changes. The change control process is performed in accordance with approved procedures. For CM to be successful, unauthorized changes by any means must be prevented.

Proposed changes receive a technical review performed by qualified personnel to evaluate safety, environmental, and mission impacts; verify appropriate post-implementation acceptance criteria; and identify affected SSCs and associated documentation. Also, each change is reviewed to determine if it is within the bounds of the design requirements. Changes to design requirements are reviewed and approved by the design authority prior to implementation. Proposed changes are permitted only if found to be consistent with the approved requirements.

Prior to implementation, management reviews proposed changes (including those that do not involve a change to design requirements) to verify that the technical reviews have been performed, that the change package is complete, and that any necessary external reviews have been obtained. When satisfied, management approves the change for implementation. The change control process includes mechanisms for field change requests and technical reviews and approvals of field changes are commensurate with original change package.

Graded Approach

A graded approach means that the depth and rigor of detail necessary and the magnitude of resources to be invested are consistent with the quantity, size, scope, complexity, hazard involved, remaining facility or project life and other considerations. (Improvements to existing CM processes are accomplished in phases with initial emphasis on health, safety, and environment.)

Design Requirements

The requirements element identifies the functions and constraints (i.e., requirements) that must be satisfied to maintain the design basis, safety basis, or achieve compliance with permits, laws, orders, or regulations. Requirements are contained in the documents that define the physical, functional, operational, and performance capabilities/limits and characteristics of important features. Boundaries are established for the important features included in CM in such a manner as to contain the SSCs necessary to satisfy the requirements.

Assessments

The assessment element systematically evaluates the implementation of the other CM elements. Assessments examine, on an established frequency, the overall effectiveness of the CM programs and procedures (e.g., change control and document control) to determine if the control is adequate and appropriate. These assessments identify needed improvements or the need to increase or decrease the level of control. Physical configuration assessments or walkdowns are performed for a representative sample of SSCs to determine the degree of agreement between the physical configuration, the requirements, and the associated documents. If substantial discrepancies are identified, then appropriate corrective action is taken.

This element also periodically monitors the important characteristics of SSCs included in CM to determine if they continue to be capable of meeting their design requirements. This monitoring includes surveillance, periodic inspections and tests, and other actions taken to ensure safe and reliable operation in conjunction with maintenance activities. This monitoring considers measurements and trending of data related to aging degradation to prevent failure of the SSC from impacting operations and to ensure that design requirements continue to be satisfied throughout the life cycle of facilities, projects, operations, experiments, and activities.

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

This is a site-specific competency. Check with your configuration management program for information to complete this competency.

14. A Senior Technical Safety Manager shall have a working level knowledge of safeguards and security as it relates to safety practices.

a) Define the terms “safeguards” and “security” as they apply to the DOE safeguards and security program.

Safeguards against potential environmental damage and methods for mitigating environmental hazards must be developed. Security systems must be designed to protect the public from endangerment as well as protection for the facility.

b) Discuss in detail the purpose, interrelationship, responsibilities and basic requirements for the following:

- Physical security
- Personnel security
- Material Control and Accountability

Physical security

Physical security systems create an environment of acceptable risk for intelligence-related facilities.

Personnel security

Personnel security requirements are developed to:

- ensure that individuals are processed for, granted, and retain a DOE access authorization only when their official duties require such access;
- allow access to DOE classified matter and special nuclear materials (SNM) only when it has been determined that such access will not endanger the common defense and security and is clearly consistent with the national interest;
- maintain the numbers and types of access authorizations at the minimum levels necessary to ensure the operational efficiency of DOE classified and SNM programs and operations;
- conduct personnel security activities in a manner that ensures the:
 - (1) timely and efficient processing of initial access authorization requests and reinvestigations;
 - (2) consistent, objective, and fair interpretation and application of criteria and procedures in every access authorization action;
 - (3) timely review and adjudication of investigative reports and other information related to an individual’s access authorization eligibility; and
 - (4) maintenance of accurate, complete, and timely access authorization file and record information, the availability of such information to authorized users, and the protection of such information against unauthorized disclosure;
- periodically evaluate individuals retaining access authorizations to confirm their continued need-for-access and access authorization eligibility;
- ensure that DOE employees, contractors, and others involved in personnel security activities effectively and efficiently execute their personnel security related responsibilities and authorities;
- prevent the use of personnel security activities for reprisal, discrimination, or any other unauthorized purpose; and

- promote proactive participation in personnel security activities at the international, national, and inter-agency levels to ensure the adequate expression and consideration of DOE mission and program interests.

Material control and accountability (MC&A)

General requirements for material control and accountability are:

- SNM must not be received, processed, or stored at a facility until facility approval has been granted in accordance with the requirements of DOE O470.1, Safeguards And Security Program.
- Facilities must control and account for nuclear materials as required. Field Elements must implement an MC&A program using requirements contained in DOE M474.1-1, Manual for Material Control and Accountability as the minimum for nuclear materials. The level of control and accountability must be graded according to the economic and strategic value of these materials and the consequences of their loss.
- Each facility must designate a management official responsible for MC&A. This official must be organizationally independent from responsibility for other programs. Each facility or site that has a reporting identification symbol (RIS) must designate a Nuclear Materials Representative who will be responsible for nuclear materials reporting and data submission to the Nuclear Materials Management and Safeguards System (NMMSS). The NMMSS is used to accumulate and distribute information concerning nuclear materials transactions and inventories. The objective of the system is to report accurate and complete data as soon as possible after the events described by the data occur. The national data base must provide nuclear materials information relating to safeguards, materials management and production, inventory quantities and valuations, and other programs requested or required by DOE or the Nuclear Regulatory Commission (NRC).
- Each facility must maintain documentation that defines authorities and responsibilities for MC&A functions (e.g., accounting system, measurements, measurement control, inventories, audit, material access controls, and surveillance). Each facility must have a program to ensure that personnel performing MC&A functions are trained and qualified to perform their duties and responsibilities and are knowledgeable of requirements and procedures related to their functions.
- Each facility possessing nuclear materials must develop an MC&A Plan that specifies review frequency and change control and is approved.

This is only a partial list of the requirements for MC&A. A complete list along with associated tables and figures is available in DOE M474.1-1, Manual for Material Control and Accountability at <http://www.directives.doe.gov>

c) Describe the use of information security systems within DOE.

The information security system is used to help ensure that sensitive information is protected from compromise and secured against unauthorized disclosure. The system is structured to provide management with the necessary information required for sound risk management decisions concerning the protection of sensitive information.

d) Discuss the interrelationship between safeguards and security to safety practices.

Safeguards and security functions often involve inherently hazardous activities or hazardous conditions.

Persons performing safeguards and security functions at DOE facilities often perform inherently hazardous activities, or are exposed to hazardous conditions. For example, protective force personnel perform a variety of duties, such as patrolling at night and under adverse weather conditions, responding to alarms, and enforcing security requirements that can involve the use of force, including deadly force, for protecting strategic quantities of special nuclear material. Further, security personnel must perform activities in areas where radioactive materials and/or hazardous chemicals are used and stored.

e) Discuss the security requirements associated with the Department's foreign visitor program.

All unclassified visits (30 days or less) and assignments (more than 30 days) of foreign nationals will be managed consistent with DOE and national security policy and requirements.

All DOE organizations that sponsor unclassified foreign national visits and assignments will maintain a reporting and record keeping system consistent with the requirements of this Notice. The reporting system will be an integral part of the approval process and reporting information will be provided to DOE Headquarters to support the Departmental information needs. At a minimum, the following information on each foreign visitor and assignees will be reported:

- Biographical and personal information including date and place of birth and permanent address, and place/nature of employment.
- Passport, visa, and Immigration and Naturalization Service information. Purpose for the visit or assignment including detailed information on the research to be performed.
- Actual dates, subjects, and areas to be visited and those areas actually visited.
- Need for an export license.
- Information related to required indices checks.
- Information related to the appropriate security plan (generic or specific).
- Identity of the host of the visit or assignment.
- Identity of the sponsoring organization of the visit or assignment.

Additional information will be required for all visits or assignments that require access to a security area by a foreign national, access to a sensitive subject by a foreign national, or access to any DOE facility or site by a foreign national from a sensitive country. This additional information must clearly indicate the results of coordination with counterintelligence, foreign intelligence, export control, and security organizations. Counterintelligence organizations will maintain the responsibility for indices checks, export control organizations will maintain responsibility for sensitive subject reviews and transfer authorization, and security organizations will ensure development of plans for the protection of security interests. The additional information will be provided to DOE Headquarters to support Departmental information needs.

Approval authority, with the exception noted below, for all unclassified foreign visits and assignments at DOE field and contractor sites (including DOE laboratories) will be delegated to the site manager/laboratory director. Approval authority for unclassified visits and assignments at DOE Headquarters will be assigned to the Secretarial Officer from the sponsoring organization. Approving officials will be accountable for all approval decisions and for implementing an approval process in conformance with this Notice. Each DOE and DOE contractor organization must have an approval process, which includes appropriate input from officials with responsibility for counterintelligence, security, export control, and technology transfer. These processes must address requirements for indices checks and security plans, if required, and will provide for follow-up contact by facility counterintelligence officials. These processes will also ensure

- that instances of close and continuing contact with foreign visitors and assignees from sensitive countries on or off DOE sites are referred to the facility counterintelligence officials and
- compliance with the Export Control Guidelines established by the Office on Non-proliferation and National Security. All visits and assignments by foreign nationals from countries on the list of State sponsors of terrorism maintained by the Department of State are to be approved by the Secretary.

Indices checks are required for all visits and assignments of foreign nationals that are citizens of, or are employed by a government or institution of, a sensitive country, and all visits and assignments of foreign nationals involving security areas or sensitive subjects. Indices checks will be completed by the Office of Counterintelligence. Indices checks will not be required for visits to designated DOE officials by foreign national diplomats and other foreign national senior government officials for the primary purpose of high-level policy dialogue. The Secretary will designate these DOE officials.

A minimum of 30 days advance notice will be required for indices checks on visitors and assignees as required in paragraph d. The results of indices checks will be used in the review and approval process by the host organization.

Indices checks must be completed prior to the visit or assignment. When circumstances do not allow for timely submission or completion of an indices check, the approving official must consult with the appropriate counterintelligence official prior to making an approval decision.

Security plans are required for all unclassified foreign visits and assignments to security areas. Specific security plans tailored for individual foreign visits or assignments shall be developed and approved by the site manager/laboratory director for all visits or assignments that require access to a security area, access to a sensitive subject, or access to any DOE facility or site by a foreign national from a sensitive country. When access to a security area or a sensitive subject is not required, generic security plans will be developed. Generic security plans shall ensure that security interests and sensitive information and technologies are not placed at risk as a result of hosting foreign visitors and assignees. Security plans shall be reviewed by the cognizant DOE Field or Headquarters security organization (depending

on where the visitor or assignee is going) and approved by the unclassified foreign visits and assignments approval authority prior to the commencement of the visit or assignment.

The Office of Nonproliferation and National Security will maintain and distribute a current list of Sensitive Countries, which will be updated annually based on input from the appropriate DOE organizations. This list may be supplemented by the Secretary of Energy, to include additional countries posing significant national economic security concerns. Approving officials are responsible for managing approvals according to the current list. The Office of Nonproliferation and National Security will maintain and distribute a current list of Sensitive Subjects. This list will be reviewed at least every six months based on input from appropriate DOE organizations. DOE facilities may append lists of their own comprising proprietary information. These lists shall be developed with input from facility officials with responsibility for counterintelligence, export control, foreign intelligence, and national security; and are to be submitted to The Office of Nonproliferation and National Security and the Office of Counterintelligence.

The Office of Foreign Visits and Assignments Policy, in coordination with the Office of Counterintelligence, will manage a central tracking system for visits and assignments to DOE facilities and establish required reporting formats.

Line management is responsible for implementation of the unclassified foreign visits and assignments process. Program reviews shall be conducted periodically by the Office of Foreign Visits and Assignments Policy and the Office of Counterintelligence to assess policy effectiveness and identify improvement areas. Independent oversight of the overall performance of the Foreign Visits and Assignments Program is the responsibility of the Office of Independent Oversight and Performance Assurance

15. A Senior Technical Safety Manager shall have a working knowledge of the DOE Directives structure and their relationship to applicable laws, rules, Federal/state regulations and industry standards.

a) Discuss the purpose of, and the relationship between DOE Orders, Directives, Federal regulations, and state regulations.

Directives include Policies, Orders, Notices, Manuals, Regulations, Technical Standards and related documents, and Guides.

Policies describe the philosophies and fundamental values of the Department. Other documents in the Directives System flow from Policies and must be consistent with them. Because Policies are general in nature, they may require that more specific requirements are established in Regulations, Orders, Notices, and Manuals.

Regulations establish enforceable requirements pursuant to the Department's authority under law and in accordance with the Administrative Procedure Act. Their development is managed by the Office of General Counsel.

Orders establish management objectives, requirements, and assignment of responsibilities for Federal employees; they also establish intended requirements for contractors.

Standards and related documents are non-mandatory criteria managed under the Technical Standards Program to provide guidance to contractors and DOE personnel on acceptable methods for meeting requirements.

b) Discuss the DOE Order development and approval process.

The steps below must be followed for each new Order or major revision.

- The Office of Primary Interest shall identify the need for a directive. This may result from new legislation or Regulation, a change or development in Departmental policy, a change in technology, lessons learned, etc.
- The head of the Office of Primary Interest shall appoint a Directive Development Manager, who shall determine the type of directive that is appropriate as well as the Departmental Elements and contractors to participate in development of the directive.
- The Directive Development Manager and Directives System Manager shall develop a schedule for completion of major tasks; for example, preparation of the DMD and draft directive, review of each by Departmental Elements and contractors, preparation of cost impact estimates (if required), resolution of comments, and preparation, approval, and distribution of final directive.
- The Directive Development Manager shall develop the DMD for a new or revised Order. The DMD shall then be submitted to the Directives System Manager for editorial review in advance of coordination. Any changes made as a result of this review must be concurred in by the Office of Primary Interest.
- Departmental Elements and contractors shall review the DMD to identify significant issues, comment on the need for and feasibility of implementing the proposed

directive, suggest alternate approaches, and comment on the preliminary cost documentation.

- The Office of Primary Interest shall provide preliminary cost documentation on the DMD for each Order, with new, modified, or canceled requirements. This documentation shall contain the following:
 - a) Any assumptions, cost drivers, cost methodology, or identification of requirement changes;
 - b) A description of assumptions and rationale for no additional costs or insignificant costs on the DMD, which also constitutes a cost estimate. If no objections are raised during coordination of the DMD, no further action is required.
- The Directive Development Manager, with editorial assistance provided by the Directives System Manager, shall prepare a draft directive and the initial cost impact estimate using input generated by the DMD. The Directive Development Manager shall solicit participation in development of these documents from Departmental Elements and contractors where appropriate.
- The Directives System Manager's editorial review, conducted in cooperation with appropriate Departmental Elements (General Counsel, Program Offices, etc.), shall include examining the document organization and internal consistency, determining its compatibility with other directives and external Regulations, and ensuring that its provisions are clearly and succinctly stated. Prior to coordination, the Directive Development Manager from the Office of Primary Interest will review and agree upon changes made as a result of the editorial review. It shall then be distributed to Department Elements and contractors for review.
- Departmental Elements and contractors shall review the draft directive and provide comments to the Office of Primary Interest, which shall prepare the final draft for approval and provide feedback to the reviewers.
- The Office of Primary Interest is responsible for identifying requirements added, deleted, or modified by any new or revised Order. This information will be issued along with the final directive to help implementing organizations understand the impact of the directive. For Directives of interest to the DNFSB, this information shall be presented as a crosswalk showing the disposition of existing requirements.

c) Discuss the DOE rule-making process.

One of the primary duties of the DOE is to establish regulations on the safe use of nuclear materials. These are developed in collaboration of the NRC. These regulations address such issues as siting, design, construction, operation, and ultimate shutdown of nuclear power plants, uranium mills, fuel facilities, waste repositories, and transportation systems. These regulations also address other uses of nuclear materials, such as nuclear medicine programs at hospitals, academic activities, research work, industrial applications such as the use of gauges and testing equipment, and the import and export of nuclear materials and technologies. The process of developing these regulations is called rulemaking. A regulation is sometimes referred to as a rule. Rulemaking is initiated mostly by the NRC's technical staff, although any member of the public may petition the NRC to develop, change, or rescind any regulation.

Most rulemakings provide the public with at least one opportunity for comment. Often, there are several opportunities. In some cases, NRC and/or DOE holds meetings and workshops before a proposed rule is drafted. This way, members of the public can express their concerns early in the process and identify important issues to be covered in the rule. Sometimes, the NRC may publish an Advance Notice of Proposed Rulemaking in the [Federal Register](#) to present options, questions, and ideas, and the public is asked to comment on these options or present options of their own. An advance notice does not include a preferred approach upon which comments are being solicited. After the public comment period is over, a decision is made whether or not to continue with the rulemaking and, if so, what form it will take. The NRC may issue an emergency rule or a minor administrative rule without seeking public comment.

When a proposed rule is developed, it is published in the Federal Register for public comment. The notice identifies a contact who can reply to questions and an address for sending comments. The Department may hold meetings and workshops to discuss the proposed rule, explain its purpose and background, and receive further comments. These meetings are normally announced in the Federal Register.

d) Discuss the relationship between the DOE and Occupational Safety and Health Administration and the Environmental Protection Agency.

OSHA standards must be incorporated into all Federal agency health and safety programs.

e) Discuss the difference between a DOE Order and a Rule including enforcement and implementation differences.

A DOE Order is a document that describes policy and provides requirements for DOE and DOE contractors. A rule is a regulation that, if violated, carries civil penalties and fines. DOE Orders are issued through the DOE Directives System. Rules are processed through the rulemaking procedure.

f) Discuss the purpose and conditions of the Federal Facilities Compliance Act.

The Federal Facilities Compliance Act of 1992 establishes that Federal facilities do not have sovereign immunity from state enforcement of state environmental laws under the solid and hazardous waste provisions of the Solid Waste Disposal Act (SWDA). Thus, Federal facilities are obligated to pay fines and penalties assessed by states. Additionally, provisions of the Act give EPA broader enforcement authority at Federal facilities. Specific to the DOE, the Act includes a three-year moratorium on enforcement of storage provisions for mixed hazardous and radioactive wastes. The Act created a new mixed waste provision requiring reports on the national inventory of all mixed-waste on a state-by-state basis and on the nation's inventory on mixed waste treatment capacities and technologies. As a result of these reporting requirements RFETS has developed, obtained approval from the state, and committed to compliance with the Site Treatment Plan (STP). The STP addresses technologies and capacities to treat mixed waste to meet the Land Disposal Requirements (LDR).

g) Discuss the use of memorandum of understanding (MOU) and memorandum of agreement (MOA) with external agencies and organizations.

Some common written instruments used at DOE facilities to document and communicate agreements between multiple organizations are the MOU and the MOA. These and other documents are usually prepared to identify roles and responsibilities of respective parties in these shared situations. The roles, responsibilities, and procedures contained in these agreements should be clearly addressed to ensure that they are adequately communicated throughout the site and to all agencies and organizations.

h) Describe the intent of work smart standards and how they are applied.

WSS sets are sets of environment, safety, and health laws, regulations, and other standards that have been specifically chosen for applicability and appropriateness for a particular scope of work. They are selected to provide adequate protection (when properly implemented) against the hazards associated with that work. WSS sets were previously known as Necessary and Sufficient Sets of standards prior to the name change directed by the Secretary of Energy in April 1996.

i) Discuss the relevance of Public Law 104-113 regarding the use of industry consensus standards.

Public Law 104-113 provides the operative definition for industry consensus standards.

16. A Senior Technical Safety Manager shall have a working level knowledge of the Price Anderson Amendments Act of 1988 and its impact on DOE nuclear safety activities.

a) Describe the purpose and scope of the Price Anderson Amendments Act.

The Price-Anderson Act provides indemnification to DOE contractors who manage and conduct nuclear activities in the DOE complex. In a general sense, the government acts as an insurer for these contractors against any findings of liability arising from the nuclear activities of the contractor within the scope of its contract.

b) Discuss the Act's applicability to the Department's safety activities.

In the case of most DOE activities, the system of financial protection currently takes the form of an indemnification by DOE for legal liability for a nuclear incident or a precautionary evacuation arising from activity under a DOE contract. The DOE Price-Anderson indemnification:

- provides omnibus coverage of all persons who might be legally liable for injuries related to a nuclear incident;
- indemnifies fully all legal liability up to the statutory limit on such liability (currently approximately \$8.96 billion for a nuclear incident in the US);
- covers all DOE contractual activity that might result in a nuclear incident in the US;
- is not subject to the availability of funds; and
- is mandatory and exclusive.

c) Discuss the civil and criminal penalties imposed on the Department, contractors, and subcontractors as the result of a violation of applicable rules and regulation related to nuclear safety.

For all contractors, subcontractors and suppliers thereto, DOE has the authority to issue Notices of Violation when non-compliances with nuclear safety requirements are identified. In addition, for cases involving for-profit contractors, DOE has the authority to issue fines for violations of nuclear safety rules up to \$110,000 per day per occurrence. Civil penalties are not applicable to individual employees or to contractors specifically exempted by Section 234A(d) of the Atomic Energy Act of 1954 (as amended).

d) Discuss the requirements associated with the topics below, as they are affected by rule-making aspect of the Price Anderson Amendments Act:

- Safety Analysis Reports
- Unreviewed Safety Questions
- Quality Assurance Requirements
- Defect Identification and Reporting
- Conduct of Operations at DOE Nuclear Facilities
- Technical Safety Requirements
- Training and Qualification
- Maintenance Management
- Categorization, Notification, Reporting, and Processing of Operational Occurrences at DOE Nuclear Facilities

- Occupational Radiation Protection

10 CFR Part 820 (Procedural Rules for DOE Nuclear Activities) establishes the legal framework for implementing DOE's Nuclear Safety Enforcement Program. The responsibility for program development and implementation has been assigned to the Enforcement and Investigation Staff (EH-10) in the Office of Environment, Safety and Health. The Enforcement Program relies on existing DOE management systems and technical resources to assure that the enforcement process properly considers the actual or potential safety significance of a violation when determining an appropriate enforcement sanction.

Currently, three Rules have been issued. These are:

- 10 CFR 820, Procedural Rules for DOE Nuclear Activities
- 10 CFR 830.120, Quality Assurance
- 10 CFR 835, Radiation Protection

Detailed information regarding specific requirements is available at [PAAA](#)

e) Discuss the role of the Senior Technical Safety Manager with respect to implementing the requirements of the Price Anderson Amendments Act.

The following are the duties and responsibilities assigned to the Senior Technical Safety Manager:

- Integrate safety into management and work practices to accomplish mission objectives, while ensuring worker and public health and safety, and the protection of the environment.
- Comply with Departmental Directives, Federal and state regulations and other binding agreements.
- Direct and provide support, and allocate resources to meet the Department's mission safely.
- Manage people, implement policies and procedures, perform technical reviews, and provide technical direction and feedback to contractor and Federal employees.
- Integrate monitoring and assessment activities and provide feedback to the contractors.
- Recruit, select, train, and qualify employees to establish and maintain technical competence.
- Effectively communicate technical safety expectations and issues.

17. A Senior Technical Safety Manager shall have a working level knowledge of the DNFSB charter and their interaction with DOE.

a) Discuss the enabling legislation and the charter of the DNFSB.

The DNFSB is an independent executive branch establishment responsible for providing advice and recommendations to the President and the Secretary of Energy (Secretary) regarding public health and safety issues at Departmental defense nuclear facilities.

The Board is chartered by Congress to perform the following functions:

- review and evaluate the content and implementation of the standards relating to the design, construction, operation, and decommissioning of Departmental defense nuclear facilities (including applicable Departmental Orders, regulations, and requirements);
- investigate any event or practice at Departmental defense nuclear facilities that has adversely affected or may adversely affect public health and safety;
- analyze design and operational data, including safety analysis reports, from any Departmental defense nuclear facility;
- review the design and construction of a new Departmental defense nuclear facility and make recommendations considered necessary to protect public health and safety; and
- make such recommendations to the Secretary with respect to Departmental defense nuclear facilities, including operations of such facilities, standards, and research needs, as the Board determines are necessary to ensure adequate protection of public health and safety.

The DNFSB's enabling legislation is available for review at <http://www.deprep.org>

b) Identify and discuss applicable DNFSB recommendations.

The Board issues recommendations to the Secretary on issues or circumstances that it determines need to be resolved to ensure adequate protection of the public health and safety. The Secretary must respond to each Board recommendation within 45 days of its publication in the Federal Register.

The current list of open DNFSB recommendations is available for review at at <http://www.deprep.org>

c) Identify and discuss Department implementation plans and commitments made in responses to DNFSB recommendations.

When a Board recommendation is received, the Departmental Representative shall coordinate with the affected Secretarial Officers to designate the cognizant Secretarial Officer. If necessary, the Deputy Secretary shall resolve any disagreements regarding designation of the cognizant Secretarial Officer. The cognizant Secretarial Officer shall oversee the development of the Department's response and, if the recommendation is accepted, the associated implementation plan, resolution of the applicable safety issues, and ultimate closure of the recommendation.

The cognizant Secretarial Officer shall designate a Responsible Manager, typically a Deputy Assistant Secretary or Operations/Area Office Manager, to manage development and implementation of an adequate response and, if necessary, an implementation plan for resolving the Board recommendation. The Responsible Manager should possess sufficient stature and authority to obtain the necessary commitments of action from the various organizations involved. An Operations/Area Office Manager should be considered for recommendations that are limited to a single site; a Deputy Assistant Secretary is more appropriate for recommendations with implications for multiple sites and organizations. This Responsible Manager may, in turn, identify a technical lead to assist in coordinating response development and implementation planning. The selection of an appropriate Responsible Manager and an experienced technical lead with the necessary technical, communications, and management skills is key to the Department's success. The continuous commitment of the Responsible Manager and technical lead throughout the life of a recommendation has also proven to be important for effective Departmental interface with the Board.

The Responsible Manager shall establish a response team to support the development and implementation of the Department's response. Secretarial Offices and Operations/Area Offices expected to be major stakeholders in the implementation plan should provide members for this team. The Points of Contact should assist the Responsible Manager in obtaining appropriate team participation from their respective organizations, including field representatives, as appropriate. Team participants shall have the authority to speak for their management. The Responsible Manager should solicit early involvement of the Office of the General Counsel to support the response team in addressing legal issues or procedural requirements. The Departmental Representative's office shall designate an Issue Lead to support the Responsible Manager as a member of the response team.

The response team should promptly begin development of the Department's response and the associated implementation plan, if expected to be necessary. To promote timeliness and responsiveness, affected Departmental elements should follow the process presented in Attachment 2 and summarized in Figure 2 of DOE M140.1-1, Interface with the DNFSB.

The response team shall, as a minimum, consider the following topics:

- significant safety issues associated with the recommendation,
- underlying causes and implications of these issues,
- existing programs and activities that can be built upon,
- strategic input from affected Departmental elements,
- public comments forwarded from the Board,
- costs and benefits associated with implementation, and
- the impact on ongoing Departmental programs and activities.

The response team should seek discussions with one or more Board members to fully understand the Board's views regarding the underlying safety issues and potential resolution approaches.

Prior to obtaining concurrence on the Secretary's response letter, the Responsible Manager should estimate the associated costs and contribution to safety and brief Departmental senior management concerning this information.

d) Discuss the roles and responsibilities of the Representative to the DNFSB as describe in M140.1-1, Interface with the DNFS.

Following are responsibilities of the Departmental Representative to the DNFSB:

- Represents the Secretary in regular and continuing interactions with the Board.
- Advises the Secretary, Deputy Secretary, Secretarial Officers, and other Departmental officials on Board priorities, concerns, actions, and plans.
- Manages Departmental interface activities and provides direction and advice to line management on Board-related matters.
- Coordinates with affected Secretarial Officers and designates a cognizant Secretarial Officer to respond to a Board recommendation, Board correspondence, or other Board issue.
- Facilitates communication and cooperation between Departmental elements and the Board and its staff.
- Reviews written communications to the Board (with the exception of responses to information requests) for consistency and responsiveness, and provides concurrence approval or disapproval.
- Manages the Department's Safety Issues Management System for Board-related issues, commitments, and actions.
- Maintains awareness of line implementation of Departmental commitments to the Board and takes appropriate action to focus line management attention on resolving the identified safety and management issues.
- Prepares reports on Board-related activities for senior Departmental management, Congress, and the President.
- Provides guidance and training on Manual to Departmental Points of Contact and support personnel.
- Maintains and distributes a listing of key Departmental personnel for Board-related activities.
- Maintains the Department's central repository of official Board communications and makes this information available to Departmental and contractor personnel.
- Facilitates Board review of Departmental directives, rules, and standards.

See also DOE M251.1-1A, Directives System Manual, and DOE Technical Standard Program Procedure DOE-TSPP-6, Coordination of Technical Standards.

More detailed information including the most recent version of DOE M140-1-1, Interface with the DNFSB is available at <http://www.deprep.org>

e) Prepare and/or participate in a briefing to the DNFSB on the status of a Departmental activity or initiative.

This is a performance-based competency. As such, no training aids are provided here.

18. A Senior Technical Safety Manager shall have a working level knowledge of Problem identification, problem-solving, and decision-making techniques.

a) Describe and explain the application of problem analysis techniques including the following:

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

Detailed descriptions of these techniques are available in the Problem Analysis and Risk Assessment Study Guide at http://cted.inel.gov/cted/learn_resource/para.pdf

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**
- **Recommendation generation**

Detailed descriptions of these techniques are available in the Problem Analysis and Risk Assessment Study Guide at http://cted.inel.gov/cted/learn_resource/para.pdf

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

Refer to the Problem Analysis and Risk Assessment Study Guide at http://cted.inel.gov/cted/learn_resource/para.pdf

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

- **Type A**
- **Type B**

Refer to the Problem Analysis and Risk Assessment Study Guide at http://cted.inel.gov/cted/learn_resource/para.pdf

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

Refer to the Problem Analysis and Risk Assessment Study Guide at http://cted.inel.gov/cted/learn_resource/para.pdf

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

Refer to the Problem Analysis and Risk Assessment Study Guide at http://cted.inel.gov/cted/learn_resource/para.pdf

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.

This is a performance-based competency. As such no training aids will be provided here. Refer to the Problem Analysis and Risk Assessment Study Guide at http://cted.inel.gov/cted/learn_resource/para.pdf for instructions.

19. A Senior Technical Safety Manager shall have a working level knowledge of technical contract management to assess contractor performance.

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

Cost-Plus-Award-Fee Contract:

This contract compensates the contractor for costs incurred in management and operations of a facility or installation, and provides for a fixed base fee and an additional fee awarded based on contractor performance, as determined by the DOE.

Cost-Plus-Fixed-Fee Contract:

This contract compensates the contractor for costs incurred in management and operations of a facility or installation, and provides for a fixed fee specified in the contract for contractor performance.

Cost-Plus-No-Fee Contract:

This contract compensates the contractor for costs incurred in management and operations of a facility or installation. No additional fee is paid for contract performance. In contracts with some academic institutions, the contract provides for a management allowance paid by the DOE to cover general and administrative costs incurred by the parent institution in support of departmental operations.

The disadvantages associated with these techniques are:

- the large portion of total costs reimbursed under the cost-plus provisions of the contracts,
- the absence of a well-defined scope of work,
- the absence of definitive performance measures and criteria to evaluate performance and determine the appropriate award or fixed fee that should be paid a contractor,
- financial data was inadequate to allow the DOE to manage effectively, and
- lack of competition resulting in reduced contractor responsiveness.

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

The types of contracting processes that are used to put major contract in place are:

- Simplified acquisition procedures
- Sealed bidding
- Contracting by negotiation

c) Describe the accountability rule and discuss the role that it plays in contract management.

The accountability rule makes contractors financially responsible for certain avoidable costs.

d) Discuss the following terms and they apply to financial accountability for the contractor:

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

Incentives

Incentive contracts are appropriate when a firm-fixed-price contract is not appropriate and the required supplies or services can be acquired at lower costs and, in certain instances, with improved delivery or technical performance, by relating the amount of profit or fee payable under the contract to the contractor's performance. Incentive contracts are designed to obtain specific acquisition objectives by:

- establishing reasonable and attainable targets that are clearly communicated to the contractor; and
- including appropriate incentive arrangements.

The two basic categories of incentive contracts are fixed-price incentive and cost-reimbursement incentive contracts. Since it is usually to the government's advantage for the contractor to assume substantial cost responsibility and an appropriate share of the cost risk, fixed-price incentive contracts are preferred when contract costs and performance requirements are reasonably certain. Cost-reimbursement incentive contracts are subject to the overall limitations in that apply to all cost-reimbursement contracts.

Additional information available in the Federal Acquisition Regulations at http://www.arnet.gov/far/old_htmlframe.html

Fines and Penalties

Costs of fines and penalties resulting from violations of, or failure of the contractor to comply with, Federal, State, local, or foreign laws and regulations, are unallowable except when incurred as a result of compliance with specific terms and conditions of the contract or written instructions from the contracting officer.

Third-party Liabilities

The principle of materiality and full disclosure should govern the inclusion of third-party liabilities. The nature of the liability should be identified and reported, either by a footnote to the financial statement or by actual inclusion of an amount in a liability account if the potential amount due or a loss can be estimated.

Loss of, or damage to government property

Contractors are responsible and liable for government property in their possession, unless otherwise provided by the contract. Generally, government contracts do not hold contractors liable for loss of or damage to government property when the property is provided under:

- negotiated fixed-price contracts for which the contract price is not based upon any exception;
- cost-reimbursement contracts;

- facilities contracts; or
- negotiated or sealed bid service contracts performed on a government installation where the contracting officer determines that the contractor has little direct control over the government property because it is located on a government installation and is subject to accessibility by personnel other than the contractor's employees and that by placing the risk on the contractor, the cost of the contract would be substantially increased.

When justified by the circumstances, the contract may require the contractor to assume greater liability for loss of or damage to government property than that contemplated by the government property clauses. For example, this may be the case when the contractor is using government property primarily for commercial work rather than government work.

Under certain conditions subcontractors are liable for loss of or damage to government property furnished through a prime contractor.

A prime contractor that provides government property to a subcontractor shall not be relieved of any responsibility to the government that the prime contractor may have under the terms of the prime contract.

Additional information available in the Federal Acquisition Regulations at <http://www.arnet.gov/far/farqueryframe.html>

Allowable costs

Allowable ownership and operating costs shall be determined as follows:

- Actual cost data shall be used when such data can be determined for ownership and operations costs for each piece of equipment, or groups of similar serial or series equipment, from the contractor's accounting records.
- Predetermined schedules of construction equipment use rates. The allowance for operating costs may include costs for such items as fuel, filters, oil, and grease; servicing, repairs, and maintenance; and tire wear and repair. Costs of labor, mobilization, demobilization, overhead, and profit are generally not reflected in schedules, and separate consideration may be necessary.
- When a schedule of predetermined use rates for construction equipment is used to determine direct costs, all costs of equipment that are included in the cost allowances provided by the schedule shall be identified and eliminated from the contractor's other direct and indirect costs charged to the contract.
- Reasonable costs of renting construction equipment are:
 - Costs, such as maintenance and minor or running repairs incident to operating such rented equipment, that are not included in the rental rate are allowable.
 - Costs incident to major repair and overhaul of rental equipment are unallowable.
- The allowability of charges for construction equipment rented from any division, subsidiary, or organization under common control, will be determined.
- Costs incurred at the job site incident to performing the work, such as the cost of superintendence, timekeeping and clerical work, engineering, utility costs, supplies, material handling, restoration and cleanup, etc., are allowable as direct or indirect

costs, provided the accounting practice used is in accordance with the contractor's established and consistently followed cost accounting practices for all work.

- Rental and any other costs, less any applicable credits incurred in acquiring the temporary use of land, structures, and facilities are allowable. Costs, less any applicable credits, incurred in constructing or fabricating structures and facilities of a temporary nature are allowable.

Non-allowable costs

Costs that are expressly unallowable or mutually agreed to be unallowable, including mutually agreed to be unallowable directly associated costs, shall be identified and excluded from any billing, claim, or proposal applicable to a government contract. When an unallowable cost is incurred, its directly associated costs are also unallowable.

Costs which specifically become designated as unallowable or as unallowable directly associated costs of unallowable costs as a result of a written decision furnished by a contracting officer shall be identified if included in or used in computing any billing, claim, or proposal applicable to a government contract.

The practices for accounting for and presentation of unallowable costs will be those as described in 48 CFR 9904.405, Accounting for Unallowable Costs.

Additional information available in the DOE Accounting Handbook at <http://www.cfo.doe.gov/policy/actindex/index.html-ssi>

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

Techniques for assessing performance are available at DOE G120.1-5, Guidelines for Performance Measurement at <http://www.directives.doe.gov>

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

Information related to fee-based evaluation and developing performance criteria is available in the Business Management Oversight Program Handbook at <http://www.al.gov/main/InfoLibrary/handbook.doc>

Additional information also available in DOE O224.1, Contractor Performance-Based Business Management Process at <http://www.directives.doe.gov>

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

The Field Management Branch negotiates and administers all management and operating contracts assigned to DOE/AL. Activities include:

- Pre-solicitation planning;
- contractor selection;
- negotiation;
- instrument preparation;
- appropriate coordination;
- ongoing administration, including fee administration;
- instrument termination, close-out, and contractor purchasing system reviews; and
- environmental and program management related MOU and program related interagency agreements with other government organizations and similarly related cooperative agreements with the states, Indian tribes, and companies associated with assigned projects/programs.

The DOE/AL Support Branch negotiates and administers all non-M&O, environmental and program management acquisition instruments. Activities include:

- pre-solicitation planning;
- contractor selection;
- negotiation;
- instrument preparation;
- appropriate coordination;
- ongoing administration, including performance evaluation and fee administration; and
- instrument termination and closeout.

f) Discuss the intent of the revised DOE Acquisition Regulations clause regarding safety and the impact of contract reform on safety.

The DOE regulates the nuclear safety of its major facilities under its own statutory authority derived from the Atomic Energy Act and other legislation. The Department also regulates, under certain specific conditions, the use by its contractors of radioactive materials and ionizing radiation producing machines.

The inclusion of environmental, safety, and health clauses in DOE contracts shall be made by the contracting officer in consultation with appropriate environmental, safety, and health program management personnel.

When work under management and operating contracts and subcontracts thereunder is to be performed at a facility where DOE will exercise its statutory authority to enforce occupational safety and health standards applicable to the working conditions of the contractor and subcontractor employees at such facility, the clause at 970.5204-2 shall be used in such contract or subcontract and made applicable to the work if the following conditions are satisfied:

- DOE work is segregated from the contractor's or subcontractor's other work;
- The operation is of sufficient size to support its own safety and health services; and

- The facility is government-owned, or leased by or for the account of the government.

The clause set forth in 952.223-72 shall be included in those contracts or subcontracts for, and be made applicable to, work to be performed at a facility where DOE does not elect to assert its statutory authority to enforce occupational safety and health standards applicable to the working conditions of contractor and subcontractor employees, but does need to enforce radiological safety and health standards pursuant to provisions of the contract or subcontract rather than by reliance upon Nuclear Regulatory Commission licensing requirements (including agreements with states under section 274 of the Atomic Energy Act).

20. A Senior Technical Safety Manager shall demonstrate the ability to effectively manage programs and projects utilizing the processes and procedures necessary to ensure the safety of departmental activities.

a) Describe the typical documents and data sources utilized in program management.

Refer to the DOE/AL Project Management Handbook for information to complete this competency at <http://www.doeal.gov/pfmd/index.pdf>

b) Define the following terms:

- Baseline
- Graded approach
- Infrastructure
- Life-cycle
- Programmatic management
- Metrics and performance measures

Baseline

A quantitative expression of projected costs, schedule, and technical requirements; the established plan against which the status of resources and the progress of a project can be measured.

Graded approach

The depth of detail required and the magnitude of resources expended for a particular management element to be tailored to be commensurate with the element's relative importance to safety, environmental compliance, safeguards and security, programmatic importance, magnitude of the hazard, financial impact, and/or other facility-specific requirements.

Infrastructure

All real property and installed equipment and personal property that are not solely supporting a single program mission.

Life-cycle

The life of an asset from planning through acquisition, maintenance, operation, and disposition.

Programmatic management

Functions that include planning and developing the overall program; establishing broad priorities; providing program technical direction; preparing and defending the program budget; controlling milestones; integrating all components of the program; providing public and private sector policy liaison; expediting interface activities and follow-up actions; and retaining overall accountability for program success.

Performance measure

Any evaluation, comparison, or judgement toward meeting the performance objective.

c) Describe the key elements of supervising/monitoring program activities and contractors.

Refer to the DOE/AL Project Management Handbook for information to complete this competency at <http://www.doeal.gov/pfmd/index.pdf>

d) Describe the purpose of schedules, and discuss the use of milestones and activities.

Milestones may be acceptable measures when accompanied by an assessment of your organization's ability to meet the performance expectation.

Critical milestones provide the key tasks and target dates representing broad events required to correct the problem, root cause(s) and systemic deficiencies. All critical milestones shall list an original target completion date. This is the date included in the original action plan as the proposed completion of the milestone and shall stay the same through closure. A revised target or actual completion date shall be listed if:

- The milestone target completion date has been revised, in which case the most current date shall be listed; and/or
- The milestone has been completed; in which case the completion date shall be listed.

e) Define and compare the terms “cost estimate” and “budget.”

Cost estimate

A cost estimate is a statement of costs estimated to be incurred in the conduct of an activity such as a program, or the acquisition of a project or system. The estimate can be in the form of proposals by contractors or government agencies, a response to a program opportunity notice, or a DOE estimate.

Budget

A budget is a statement of the financial position of an administration for a definite period of time based on estimates of expenditures during the period and proposals for financing them.

f) Describe the process for preparing cost estimates and budgets.

The techniques used for preparing cost estimates will necessarily vary with: the project's phase of acquisition and degree of definition; the state-of-the-art of the project; the availability of data bases, cost estimating techniques, time, and cost estimators; and the level of detail or work breakdown structure required in the estimates. A study of the item or task, in light of the degree of estimating difficulty, should indicate the method or combination of methods to be used in estimating the cost of that particular item or task, as follows:

- Bottoms-Up Technique. Generally, a work statement and set of drawings or specifications are used to takeoff material quantities required to perform each discrete task performed in accomplishing a given operation or producing an equipment component. From these quantities, direct labor, equipment, and overhead costs are derived and added thereto.
- Specific Analogy Technique. Specific analogies depend upon the known cost of an item used in prior systems as the basis for the cost of a similar item in a new system.

Adjustments are made to known costs to account for differences in relative complexities of performance, design, and operational characteristics.

- Parametric Technique. Parametric estimating requires historical data bases on similar systems or subsystems. Statistical analysis is performed on the data to find correlations between cost drivers and other system parameters, such as design or performance parameters. The analysis produces cost equations or cost estimating relationships, which can be used individually or grouped into more complex models.
- Cost Review and Update Technique. An estimate is constructed by examining previous estimates of the same project for internal logic, completeness of scope, assumptions, and estimating methodology.
- Trend Analysis Technique. A contractor efficiency index is derived by comparing originally projected contract costs against actual costs on work performed to date. The index is used to adjust the cost estimate of work not yet completed.
- Expert Opinion Technique. May be used when other techniques or data are not available. Several specialists can be consulted reiteratively until a consensus cost estimate is established.

Cost estimates can be developed for many purposes: comparative studies, trade-off studies, funding decisions, program changes, cost-benefit analyses, procurement support, and for independent review or analysis of another estimate for a test of reasonableness. Cost estimates will include all relevant costs depending on the purpose of the estimate (e.g., total life cycle costs or components thereof, such as research, development, production, and operating, support, and decommissioning costs, as appropriate).

Additional information available in DOE Order 5700.2D, Cost Estimating Analysis and Standardization at <http://www.directives.doe.gov> and in Project Management Handbook, Chapter 13, Cost Estimating, at <http://www.doeal.gov/pfmd/chapter13.pdf>

Budget

Providing adequate resources to develop, acquire, and operate a project is first a design constraint and secondly a determination of the Department's planning and budgeting process. The budget decisions shall be consistent with project baselines decisions derived requirements contained in the project management system.

Integration of decisions concerning project resource availability in the planning and budgeting process involves the following procedures:

- Field Budget Call. A field budget call shall be issued by the Chief Financial Officer in mid-to-late January incorporating any budget planning decisions that have been made by the Secretariat. Prior to including a project in the budget, a conceptual design shall be completed. Also, any planned conceptual designs, which are expected to exceed \$1 million, shall be completed and submitted to Headquarters. Project Data Sheets shall be developed and submitted for new project efforts and ongoing project efforts, which require additional funding. This documentation and the conceptual design report shall be used to validate the project and to defend the project in the internal review budget.
- Project Validation. Shortly after the field call is issued, the Office of Program/Project Management shall issue procedures and a checklist to be used with the information

- received in the field budget submission to conduct project validations. In April and May, the Office of Program/Project Management, in coordination with the program offices, shall assess new projects over \$5 million and ongoing projects requesting additional funding. The validation process evaluates the projects for readiness to proceed into the Department's budget process, and examines the planning, development, and baseline of a project to ensure that the funds requested are commensurate with the project's anticipated scope and schedule. Normally, the project must be validated prior to inclusion in the internal review budget.
- Internal Review, Office of Management and Budget, and Congressional Budgets. These reviews and budgets are described in detail in DOE 5100.3. Project documentation shall be updated according to decisions made in each review. The Conceptual Design Report, Justification of Mission Need, and Project Data Sheet are the mainline documents used to defend the project within the Department. Outside DOE (i.e., OMB and Congress) only the Project Data Sheet is used. Therefore, it is vital that the document be accurate and up-to-date for each review. Detailed instructions for preparing the data sheets are contained in DOE 5100.3. 3.
 - Field Work Package Proposal and Authorization System. Specific DOE contractors, primarily management and operations contractors, process their budget submissions through the use of the Field Work Package Proposal and Authorization System (WPAS). This system establishes a formal procedure for budget development, authorization, and monitoring for those contractors 50 specified. The major emphasis of WPAS is to group associated R&D tasks and activities into work packages for the purpose of DOE approval and control. A work package might include several project-related efforts grouped by objectives and technical discipline. Each work package shall be measurable in terms of performance, and include sufficient specifications of verifiable events or deliverables to mark project achievement. Complete coverage of WPAS will be found in DOE 5700.7A.

Additional information available in Project Management Handbook, Chapter 14, Budget Process at <http://www.doeal.gov/pfmd/chapter14.pdf>

g) Define and explain the relationship between the following terms:

- Budgeted Cost of Work Scheduled
- Budgeted Cost of Work Performed
- Actual Cost of Work Performed

Budgeted Cost of Work Scheduled

The sum of budgets for all work packages and planning packages scheduled to be accomplished (including work packages that are in progress) plus the amount of level of effort and apportioned effort scheduled to be accomplished within a given period.

Budgeted Cost of Work Performed

The sum of budgets for completed work packages and the completed portion of open work packages, plus the appropriate portion of the budgets for level of effort and apportioned effort. Also known as Earned Value.

Actual Cost of Work Performed

The costs actually incurred and recorded in accomplishing the work performed within a given period.

h) Discuss how priorities should be balanced to achieve the following:

- **Resources are effectively allocated to address safety, programmatic, and operational considerations.**
- **Protecting the public, the workers, and the environment is a priority whenever activities are planned and performed.**

Determining budget and resource allocations necessary to provide safe operations must be integrated with DOE's and the contractor's annual planning and budget cycle. A first step is to translate missions into work requirements in conjunction with the prioritization of budget and resources. By accomplishing the two tasks work analysis and budget formulation in tandem, DOE can more accurately estimate the funding required for safety analysis and control of hazards associated with the task. DOE and contractor line managers should take the lead in bringing safety expertise to bear in support of those programs/activities for which they are responsible [see DEAR 48 CFR 970.5204-2(b) and (e)]. Integrated safety management should also identify and communicate any projected vulnerabilities and risks not addressed within the projected budget. This ensures that DOE is aware of any potential site vulnerabilities and provides an opportunity to develop and enforce risk management options and strategies, including re-scoping activities, re-allocating funds and resources to address the vulnerabilities, or identifying the consequences of proceeding without addressing them.

Integration allows for effective and efficient management of risk to workers, the environment, and the public. It is DOE line management's responsibility to ensure that contractors develop and effectively implement an ISMS tailored to the risk of the work and the associated hazards and develop and effectively integrate their safety management systems with the business and operational systems throughout their organizations.

The integration process must also address all hazards and the possible risks these hazards may present to workers, the public, and the environment. Individuals responsible for engineering the processes (e.g., weapons assembly and disassembly, nuclear material fabrication and stabilization, criticality experiments, waste storage, hazardous waste cleanup, routine maintenance, pollution prevention, and waste minimization) should work with multidisciplinary teams who have direct responsibility for analyzing hazards, identifying control measures derived from that analysis, and ensuring those measures are effective. Similarly, individuals responsible for operations should have direct responsibility for the safety of those operations and should be given the resources to implement the necessary controls.

i) Discuss the requirements to procure external products and services for DOE projects.

The procurement process should ensure that items and/or services provided by suppliers meet the requirements and expectations of the end-user. The procurement process should be planned and controlled to ensure that the end-user's requirements are accurately, completely, and clearly communicated to the supplier; supplier, designer, and end-user requirements are met during the production phase; and the proper product is delivered on time and maintained until use. The selection of procurement requirements should be commensurate with the importance of the purchased items or services. Management controls exist for DOE procurement and subcontracts through applicable DOE Orders, the DOE Acquisition Regulation (the DEAR) in 48 CFR Part 9, and Federal Acquisition Regulations (FAR) in 48 CFR Parts 1 to 99. The procurement process of DOE nuclear facility contractors should include a determination of the applicability of 10 CFR 830.120 to the supplier or subcontractor. If applicable, procurement documents and contracts for items and services provided to facilities covered by 10 CFR 830.120 should include a statement informing the supplier or subcontractor that they are subject to 10 CFR 830.120 and the enforcement actions under 10 CFR 820. Suppliers and subcontractors are not required by 10 CFR 830.120 to submit their quality assurance programs to DOE for review and approval; rather, it is left to the contractor to determine the methods for ensuring that procured items and services meet requirements and perform as expected.

Additional information available in the DOE/AL Project Management Handbook, Chapter 20, Procurement and Acquisition for Project Management at <http://www.doeal.gov/pfmd/chapter20.pdf>

j) Describe the methods for procuring DOE or other government products and services.

If it is in the government's interest, and if supplies or services required in the performance of a government contract are available from government supply sources, contracting officers may authorize contractors to use these sources in performing:

- government cost-reimbursement contracts,
- other types of negotiated contracts when the agency determines that a substantial dollar portion of the contractor's contracts are of a government cost-reimbursement nature; or
- a contract under the Javits-Wagner-O'Day Act.

Before issuing an authorization to a contractor to use government supply the contracting officer shall place in the contract file a written finding supporting issuance of authorization.

Contractors placing orders under Federal supply schedules shall follow the terms of the applicable schedule and authorization and include with each order:

- a copy of the authorization, and
- the following statement: This order is placed under written authorization from _____ dated _____. In the event of any inconsistency between the terms and conditions of this order and those of your Federal supply schedule contract, the latter will govern.

k) Explain what is meant by Make or Buy in procuring products or services.

Make or buy is a decision making process that compares the cost of using resources presently owned to make the required product or provide the required service, with the cost of purchasing the product or service from a vendor or supplier.

l) Discuss the Davis-Bacon Act as it relates to DOE financial management issues.

The Davis-Bacon Act regulates minimum wage rates on Federal projects.

21. There is not a number 21 competency statement in the revised version of the STSM standard. Apparent typographical error in approved document.

22. A Senior Technical Safety Manager shall demonstrate the ability to conduct investigations and assessments, develop recommendations for corrective actions, communicate results, and develop supporting reports/documentation.

a) Describe the assessment requirements and limitations associated with the interface with contractor employees.

Management assessments are used to look at the total picture of how well their management system meets the customer's requirements and expectations. The emphasis of management assessment is on management issues that affect performance processes such as: strategic planning; qualification; training; staffing; organizational interfaces; communication; cost control; and mission objectives. The purpose of this type of assessment is to identify management aspects of performance and make improvements through an introspective analysis to determine if the management infrastructure is properly focused on achieving desired results.

Independent assessments evaluate the performance of work processes with regard to requirements and expectations for achieving the mission and goals of the organization. The focus of independent assessments should be on the items and services produced and associated processes with the objective of improving the product/service performance and process effectiveness. (Independence is defined as not having direct responsibilities in the areas being assessed.)

Worker assessments simply involve the worker routinely comparing the processes and products and services to defined expectations. This includes ensuring that the right products and services are being provided, the defined processes and procedures are being followed, and customer needs are being satisfied.

Additional information available in DOE G414.1-1, Implementation Guide for use with 10 CFR 830.120 at <http://www.directives.doe.gov>

b) Explain the essential elements and processes associated with the following assessment activities including:

- Investigation
- Fact Finding
- Reporting
- Tracking to Closure
- Follow up

Investigation

The best way to evaluate an investigation program is to observe it in action. Another effective method is to take an investigative report and associated records and review them. Items that an assessor could look for when conducting reviews include:

- The list of personnel contacted during the event.
- The overall format and content of the report
- The thoroughness of the investigation

- Indications of investigator bias as a result of preconceived ideas about what the investigation results should be.
- The history of the facility.

By reviewing the items listed above, an accurate picture of the capability of one investigator can be drawn. This, however, may or may not be representative of the site. To get a better picture of the program as a whole, a second report done by a different investigator should be reviewed to determine if there is consistency in the overall site or activity program. This type of review can be time consuming; therefore, assessors may want to pursue only a few aspects of this review in detail.

Fact Finding

Assessments seek to ensure that performance expectations as defined by management and process owners are being met. The assessor should clearly understand the basis for performance in a program, system, or process. Requirements for performance as dictated by the scope of the assessment must be researched and understood. These requirements are found in the following source documents. The performance information provides insight into organizational performance.

Source Documents

- Federal and State Regulatory Requirements
- Appropriate Codes and Standards
- Contract Requirements
- DOE Orders, Manuals, and Notices
- Implementation Plans
- Implementation Procedures
- Facility Safety Documents
- Policy and Mission Statements
- DOE Approved WSS/S/RIDs
- Plans and Programs

Performance Information

- Reports from Outside Regulators
- Facility Operations Reports
- Performance Reviews
- Previous Assessment Reports I
- Internal Inspections, Reviews, and Reports
- Corrective Action Plans and Status Reports
- Concerns and Occurrence Reports
- Performance Indicators

Requirements contained in these documents are selected based upon impact on the assessed organization's mission and the relationship to the scope of the assessment. From selected requirements, objective statements (performance measures) are developed for determining whether or not a program, system, and/or process is working. From these measures, the specific performance criteria (based on written programs, DOE Orders, rules, etc.) are developed and tools selected for conducting the appraisal. In developing performance criteria, assessment personnel cannot reinterpret or redefine requirements specified in the source documents.

Reporting

Independent assessment programs and, less formally, management assessment programs, call for the development of an assessment report as a vehicle to communicate the issues identified during an assessment. The assessment report may be informal or formal depending on the level of assessment performed. The report must provide a clear picture of the results in terms of the programs, systems, and processes assessed. The report should be clear and easy to understand and should include only facts that directly relate to assessment observations and results. It should include sufficient information to enable the assessed organization to develop and implement appropriate improvement plans and check the report for accuracy (if such a check was not done during the assessment). Every effort should be made to ensure assessment reports are concise, accurate, and understandable. In preparing the report, authors should remember that many people who will read the report have had no active role in the assessment and the report may be their only source of information regarding its conduct and results. For example, summary information may be clearer or more easily understood if presented graphically. Specific report formats may vary considerably from one organization to the next. In developing a report format, the assessment organization should solicit input from report recipients to ensure it meets their needs.

A sample assessment report is available in DOE-EM-STD-5505-96, DOE Limited Standard Operations Assessments, beginning on page 159, <http://tis.eh.doe.gov/techstds>

Additional information is available at <http://www.directives.doe.gov>

Tracking to Closure

After a reasonable period of time has elapsed, follow-up activities should be performed to verify the effectiveness of the corrective action and how it was implemented. There are several ways to verify the implementation of corrective action, including:

- a reassessment of the deficient areas; review of new or revised quality-affecting documents such as manuals, procedures, training records, etc.;
- verification during the next scheduled assessment; and
- verification by conducting a surveillance covering the areas of concern.

The key thing to remember when verifying corrective action implementation is that verification is necessary. A solution to a problem may look good on paper but may not be readily implementable. The failure to adequately identify all root causes will most likely result in a recurrence of the deficiency. Therefore, an appropriate amount of follow-up is necessary to assure the effectiveness of the corrective action process and to reestablish confidence in the item/service assessed.

Follow up

Refer to comments regarding tracking to closure.

Corrective Action Implementation

Management responsible for the activities assessed are also responsible for the development of effective corrective action of the problem areas or deficiencies discovered during the assessment. As a minimum, the corrective action should address:

- measures to correct each deficiency,
- identification of all root causes for significant deficiencies,
- determination of the existence of similar deficiencies,
- corrective actions to preclude recurrence of like or similar deficiencies,
- assignment of corrective action responsibility, and
- completion dates for each corrective action.

For independent assessments, the proposed corrective action should be reviewed for concurrence by the assessment team leader. This will help ensure that the planned actions will be effective in resolving the problem areas and deficiencies reported by the assessment team.

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

Disputes over the corrective action plan or its implementation (such as timeliness or adequacy) must be resolved at the lowest possible organizational level. The organization that disagrees with the disposition of a given issue may elevate the dispute for timely resolution. The organization that disagrees with the disposition of a given issue must elevate the dispute in a step-wise manner through the management hierarchy. The dispute must be raised via a deliberate and timely dispute resolution process that provides each party with equal opportunity for input and a subsequent opportunity to appeal decisions up to the Secretary of Energy, if necessary.

d) Lead a team to conduct compliance-based and performance-based assessments. Identify the differences in outcomes and the reasons for these differences.

This is a performance-based competency. As such, training aids will not be provided here. Please make arrangements with your supervisor to complete this competency.

e) Write, or review and approve, an assessment appraisal report.

This is a performance-based competency. As such, training aids will not be provided here. Please make arrangements with your supervisor to complete this competency.

f) Based on an evaluation of contractor activities, review and approve corrective actions and recommendations, and communicate the results to contractor management.

This is a performance-based competency. As such, training aids will not be provided here. Please make arrangements with your supervisor to complete this competency.

g) Participate in formal meetings between Department management and assessed organizations management to discuss the results of the assessments.

This is a performance-based competency. As such, training aids will not be provided here. Please make arrangements with your supervisor to complete this competency.

23. A Senior Technical Safety Manager shall demonstrate the ability to trend and analyze safety-related performance data.

a) Discuss the processes used in the trending and analysis of operations information.

Detailed information and guidance regarding trending and analysis of operations is available in DOE G120.1-5, Guidelines for Performance Measurement at <http://www.directives.doe.gov> 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.

Establish a program that identifies, gathers, verifies, analyzes, trends, disseminates, and makes use of ES&H performance indicators to improve the performance of DOE facilities, programs, and organizations. Gather, verify, analyze, trend, and disseminate ES&H performance indicator data, including narrative data, which can help assess performance; where appropriate, perform root cause analyses. Implement feedback mechanisms for identification and communication of ES&H good practices, lessons learned, and corrective actions. Maintain a management information system containing appropriate ES&H performance indicator data for historical reference. Periodically assess ES&H performance indicator programs to verify that indicators are accurately measuring performance and are resulting in improved performance.

b) Discuss the importance and key elements of the following:

- Maintenance history
- Operating incident/occurrence report data
- Security infractions
- Safety incidents
- Radiation exposure and incident reporting
- Schedule variances
- Counterfeit and suspect items

Maintenance history

Assessments should ensure that:

- Equipment repair history is used to support maintenance activities, upgrade maintenance programs, optimize equipment performance, and improve equipment reliability.
- The maintenance history program defines what data are to be collected, how the data are to be recorded, and how the data are to be used.
- A cost-effective equipment history program is in place for systems, equipment and components that warrant special attention based on initial cost, cost to maintain, or impact on facility operations or safety.
- Maintenance records are closely correlated with the current issue of the facility master equipment list.
- The facility master equipment list should be a compilation of system and equipment and provide an engineering database.

- Maintenance history records are considered in planning for corrective maintenance, modifications, and preventive maintenance, and development of facility life-cycle plans.
- Maintenance history records are readily available for use by supervisors, work planners, and maintenance or plant engineers.
- Maintenance history is periodically and systematically reviewed to identify equipment trends and persistent maintenance problems and to assess their impact on facility reliability.
- Equipment maintenance and repair history files contain items such as the following: equipment and component identification, maintenance records, diagnostic monitoring data, vendor information (or a reference to this information), corrective and preventive maintenance or modification information, and spare parts information.
- The maintenance record is a chronological list of all maintenance repair work and materials expended on a piece of equipment or component.
- Equipment repair history data is used for such activities as failure analysis, conduct of maintenance assessments, preventive maintenance, predictive maintenance, outage planning, budget preparation, reviews of DOE-wide experience, and plant life extension.
- Vendor information obtained from suppliers is controlled and indexed for ready retrieval.

Operational incident/occurrence report data

Information included in occurrence reports may be helpful in identifying potential problem areas. Corrective actions stated in occurrence reports should be verified or progress toward completion may be reviewed.

Security infractions

Legal and administrative sanctions imposed for incurring a security infraction or committing a violation should be reviewed.

Safety incidents

Information collected during accident investigations may be helpful in developing lessons learned and preventing similar incidents at other sites.

Radiation exposure and incident report

Required records include individual monitoring and dose, workplace monitoring and control, and administrative records. These records should be sufficient to provide dose information necessary to complete mandated reports to individuals.

Schedule variances

Cost and schedule performance measurement employs earned value to identify cost and schedule variances and performance trends. Unexpected technical problems are often the source of cost and schedule variances. Technical performance evaluation may facilitate early identification and definition of these problems and estimation of their cost and schedule impact.

Counterfeit and Suspect Items

The presence of counterfeit could lead to poor quality, unsafe conditions, or defective material. Evidence of counterfeit and suspect items could suggest procurement problems.

c) Using DOE O232.1A, Occurrence Reporting and Processing of Operations Information, discuss the role of a Senior Technical Safety Manager related to reportable occurrences.

Review activities relating to reportable occurrences including reporting and development of programs and procedures.

Ensure that a system for prompt notification and categorization of reportable occurrences has been established for their DOE programs and for facilities under their cognizance.

Ensure that the Headquarters Emergency Operations Center is informed of how the Program Manager or Designees can be reached at all times.

Ensure that lessons learned and generic or programmatic implications are identified and elevated to the Secretarial Officer for appropriate action.

Ensure that actions are taken to minimize or prevent recurrence.

Review and assess reportable occurrence information from facilities under their cognizance to assess the Facility Manager' and Facility Representative's evaluation of significance, root cause, generic implications, and corrective action(s) implementation and closeout, and to ensure that DOE and contractor staff involved in these operations perform the related functions.

Ensure that Occurrence Reports and operations information from other organizations are disseminated to appropriate DOE and contractor activities within their cognizance, are reviewed for generic implications, and are used to improve operations.

Ensure that Occurrence Reports are prepared and transmitted according to DOE information security requirements.

Notify the cognizant Secretarial Officer of all Unusual Occurrences.

Interact with the Facility Representative and HQ oversight organizations as necessary, and inform and advise their respective management of their findings.

Elevate any unresolved issues regarding actions or determinations on a reportable occurrence to the Secretarial Officer and, if necessary, the Secretary for resolution and direction.

d) Discuss the Department's policy regarding the reporting of occurrences as outlined in DOE O232.1A, Occurrence Reporting and Processing of Operations Information.

It is DOE's policy to ensure that the Office of the Secretary, DOE and DOE contractor line management are kept fully informed on a timely basis of events that could adversely affect

national security or the safeguards and security interests of DOE; the health and safety of the public or the workers; the environment; the intended purpose of DOE facilities; or the credibility of the Department. This information is analyzed for generic implications and for opportunities to improve operations. The following objectives are established in support of this policy.

- To establish and maintain a system for reporting operations information related to DOE-owned and -leased facilities and processing that information to identify the root causes of Unusual, Off-Normal, and Emergency Occurrences and provide for appropriate corrective action.
- To perform the following:
 - Timely identification, categorization, notification, and reporting to DOE management of reportable occurrences at DOE-owned and-leased facilities.
 - Review of reportable occurrences to assess the significance, root causes, generic implications, and the need for corrective actions.
 - Timely evaluation and implementation of appropriate corrective actions.
 - Dissemination of Occurrence Reports to DOE operations and facilities to prevent similar occurrences and facilitate analyses.
 - Maintenance of a central DOE system for reporting, processing, retrieving and analyzing unclassified, nonsensitive Occurrence Reports.

Additional information available at <http://www.directives.doe.gov>

e) Given an occurrence report, determine if the:

- Review process is adequate
- Causes are appropriately define
- Corrective actions address causes
- Lessons learned are appropriate
- Corrective actions are completed

This is a performance-based competency. As such, training aids will not be provided here. Please make arrangements with your supervisor to complete this competency.

f) Given DOE O210.1, Performance Indicators and Analysis of Operations Information, discuss the key elements of the Order and how they are applied.

(Note: The January 2000 version of the standard incorrectly refers to DOE O232.1A here.)

The key elements of the Order are:

- Establish a program that identifies, gathers, verifies, analyzes, trends, disseminates, and makes use of ES&H performance indicators to improve the performance of DOE facilities, programs, and organizations.
- Gather, verify, analyze, trend, and disseminate ES&H performance indicator data, including narrative data, which can help assess performance; where appropriate, perform root cause analyses.
- Implement feedback mechanisms for identification and communication of ES&H good practices, lessons learned, and corrective actions.
- Maintain a management information system containing appropriate ES&H performance indicator data for historical reference.

- Periodically assess ES&H performance indicator programs to verify that indicators are accurately measuring performance and are resulting in improved performance.

These requirements are to be applied to contractor's awarded contracts for the operation and management of DOE-owned and leased facilities. Contractor compliance will be required to the extent set forth in the contract. Contractors shall be directed to continue to comply with the requirements of the Order canceled by this Order until their contracts are modified to delete the reference to the requirements of the canceled Order.

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

This is a performance-based competency. As such, training aids will not be provided here. Please make arrangements with your supervisor to complete this competency.

24. A Senior Technical Safety Manager shall have a working level knowledge of quality assurance policies, programs, and processes.

a) Describe the general requirements, purpose, interrelationships and importance of DOE O414.1A, Quality Assurance, and 10 CFR 830.120, Quality Assurance.

DOE O414.1A, Quality Assurance

The general requirements for DOE O414.1A, Quality Assurance are:

- DOE elements must implement the quality assurance criteria in a manner sufficient to achieve adequate protection of the workers, the public, and the environment, taking into account the work to be performed and the associated hazards.
- DOE elements must develop their Quality Assurance Programs (QAP) by applying the quality assurance criteria specified in the Order, using a graded approach.
- DOE elements must consider the guidance on quality assurance provided in paragraph 6 of the Order to develop and implement their QAPs.
- DOE elements not presently in compliance with this Order must develop and implement a QAP within 90 days of the date of this Order. QAPs approved in accordance with DOE O414.1 must be revised to address enhancements made by this Order.
- The QAP must describe how the criteria will be satisfied.
- DOE elements must identify, document, and use appropriate standards (consistent with the National Technology Transfer and Advancement Act, P.L. 104-113, and Office of Management and Budget Circular A-119), wherever applicable, to develop and implement QAPs.
- The QAP must describe how the graded approach will be applied.
- The QAP must discuss how it integrates and satisfies quality requirements or similar management system requirements (such as environmental or safety) from sources other than this Order.
- DOE elements must respond to safety issues identified in Office of Oversight (EH-2) reports using a written corrective action plan (CAP).
- DOE elements must apply the safety issue corrective action process for CAP development and implementation.

10 CFR 830.120, Quality Assurance

This document established DOE O414.1A, Quality Assurance, as a rule. The requirements stated in the general rule are:

A contractor responsible for a DOE nuclear facility shall:

- Conduct its work in accordance with the criteria of paragraph (c) of the regulation
- Develop and submit for approval by DOE a QAP for the work; and
- Implement the QAP, as approved and modified by DOE.

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

Management

Management is responsible for leadership and commitment to quality achievement and improvement within a framework of public, worker, and environmental safety. Management

retains the primary responsibility and accountability for the scope and implementation of the management system. However, every individual in the organization is responsible for achieving quality in his or her activities. Senior management should require and cultivate the achievement and improvement of quality at all levels of the organization and ensure that the QAP is understood and implemented.

Contractor

Develop a QAP for the work as specified in its contract by applying the quality assurance criteria specified below.

The QAP must:

- discuss how the QA criteria will be satisfied;
- use a graded approach to apply the QA criteria;
- describe how the graded approach will be applied;
- integrate and satisfy quality requirements from other sources;
- integrate the QA criteria with the safety management system (SMS) description developed for 48 Code of Federal Regulations (CFR) 970.5204-2, or describe how the QA criteria will be applied to the SMS;
- describe how the QA criteria will be applied to subcontractors

c) Discuss the role of the Senior Technical Safety Managers with respect to DOE O414.1A, Quality Assurance, and 10 CFR 830.120, Quality Assurance.

The following are the responsibilities assigned to the Senior Technical Safety Managers:

- Develop, approve, and implement a QAP governing the work of the field, as applicable. Identify the senior management position specifically assigned this responsibility. Submit the QAP to the Lead Program Secretarial Officer for review and concurrence.
- Review and, where delegated authority to do so, approve new and revised QAPs for contractors within their purview. QAPs must be reviewed and approved or rejected within 90 days of receipt from the contractor.
- Perform independent assessments of contractor organizations to evaluate the adequacy and implementation of their QAPs. Other suitable methods may be used in combination with independent assessments.
- Perform management and independent assessments to evaluate the adequacy and implementation of their Field Element QAP and to improve organizational performance. Perform independent assessments of corrective actions taken for safety issues identified by the Office of Oversight to verify effective implementation.
- Prepare a CAP to address safety issues (i.e., quality problems) identified by the Office of Oversight.

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

Refer to your local quality assurance organization to obtain the information required to complete this competency.

e) Describe the quality assurance criteria of DOE O414.1A, Quality Assurance that address the following:

- Management
- Performance
- Assessment

Management

A written QAP must be developed, implemented, and maintained.

The QAP must describe the organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work.

The QAP must describe management processes, including planning, scheduling, and resource considerations.

Performance

Work shall be performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means. Items shall be identified and controlled to ensure their proper use. Items shall be maintained to prevent their damage, loss, or deterioration. Equipment used for process monitoring or data collection shall be calibrated and maintained.

Assessment

Managers must assess their management processes.

Problems that hinder the organization from achieving its objectives must be identified and corrected.

Independent assessments must be planned and conducted to measure item and service quality, to measure the adequacy of work performance, and to promote improvement.

The group performing independent assessments must have sufficient authority and freedom from the line to carry out its responsibilities.

Persons conducting independent assessments must be technically qualified and knowledgeable in the areas assessed.

Additional information available at <http://www.directives.doe.gov>

f) Referring to G-830.120-Rev 0, Implementation Guide for use with 10 CFR 830.120, Quality Assurance, discuss the implementation of an effective QAP.

A contractor shall develop a QAP by applying the quality assurance criteria. The contractor shall use appropriate standards, wherever applicable, to develop and implement its QAP. Within 180 days after May 5, 1994, a contractor shall submit to DOE for approval a current QAP and an implementation plan. A contractor may, at any time, make changes to an approved QAP. Changes made over the previous year shall be submitted annually to DOE for review. A submittal shall identify the changes, the pages affected, the reason for the

changes, and the basis for concluding that the revised QAP continues to satisfy the requirements of this section.

Changes made to correct spelling, punctuation, or other editorial items do not require explanation. Implementation plans and QAPs shall be regarded as approved by DOE 90 days after submittal, unless approved or rejected by DOE at an earlier date, and shall include any modification made or directed by DOE.

Quality assurance criteria.

- Management a written QAP shall be developed, implemented, and maintained. The QAP shall describe the organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work. The QAP shall describe management processes, including planning, scheduling, and resource considerations.
- Personnel Training and Qualification. Personnel shall be trained and qualified to ensure they are capable of performing their assigned work. Personnel shall be provided continuing training to ensure that job proficiency is maintained.
- Quality Improvement. Processes to detect and prevent quality problems shall be established and implemented. Items, services, and processes that do not meet established requirements shall be identified, controlled, and corrected according to the importance of the problem and the work affected. Correction shall include identifying the causes of problems and working to prevent recurrence. Item characteristics, process implementation, and other quality-related information shall be reviewed and the data analyzed to identify items, services, and processes needing improvement.
- Documents and Records. Documents shall be prepared, reviewed, approved, issued, used, and revised to prescribe processes, specify requirements, or establish design. Records shall be specified, prepared, reviewed, approved, and maintained.
- Performance: Work shall be performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means. Items shall be identified and controlled to ensure their proper use. Items shall be maintained to prevent their damage, loss, or deterioration. Equipment used for process monitoring or data collection shall be calibrated and maintained. Design. Items and processes shall be designed using sound engineering/scientific principles and appropriate standards.
- Design: Work, including changes, shall incorporate applicable requirements and design bases. Design interfaces shall be identified and controlled. The adequacy of design products shall be verified or validated by individuals or groups other than those who performed the work. Verification and validation work shall be completed before approval and implementation of the design.
- Procurement: Procured items and services shall meet established requirements and perform as specified. Prospective suppliers shall be evaluated and selected on the basis of specified criteria. Processes to ensure that approved suppliers continue to provide acceptable items and services shall be established and implemented.
- Inspection and Acceptance Testing. Inspection and testing of specified items, services, and processes shall be conducted using established acceptance and

- performance criteria. Equipment used for inspections and tests shall be calibrated and maintained.
- Assessment: Managers shall assess their management processes. Problems that hinder the organization from achieving its objectives shall be identified and corrected. Independent assessments shall be planned and conducted to measure item and service quality, to measure the adequacy of work performance, and to promote improvement. The group performing independent assessments shall have sufficient authority and freedom from the line to carry out its responsibilities. Persons conducting independent assessments shall be technically qualified and knowledgeable in the areas assessed.

**Senior Technical Safety Manager
Qualification Standard
Reference Guide
NOVEMBER 2001**

Prepared by



EPSILON
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