

**NOT
MEASUREMENT
SENSITIVE**

**DOE G 440.1-8
12-27-06**

IMPLEMENTATION GUIDE

for use with

10 CFR PART 851

WORKER SAFETY AND HEALTH PROGRAM

[This Guide describes suggested nonmandatory approaches for meeting requirements. Guides are not requirements documents and are not construed as requirements in any audit or appraisal for compliance with the parent Policy, Order, Notice, or Manual.]



U.S. Department of Energy
Washington, D.C. 20585

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Office of Health, Safety and Security

FOREWORD

This Department of Energy (DOE) Guide is available for use by all DOE components and their contractors.

Beneficial comments (recommendations, additions, and deletions) and pertinent data that may improve this document should be sent by letter or by submitting the self-addressed Standardization Document Improvement Proposal (DOE F 1300.3) to—

Director
DOE Office of Worker Safety and Health Policy
U.S. Department of Energy
Washington, D.C. 20585.

This Guide is intended to identify generally acceptable methods for implementing the provisions of 10 CFR Part 851 and DOES NOT ESTABLISH REQUIREMENTS.

ACRONYMS

| | |
|------------------|--|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| AEA | Atomic Energy Act |
| AIHA | American Industrial Hygiene Association |
| ANSI | American National Standards Institute |
| ASME | American Society of Mechanical Engineers |
| CBDPP | Chronic Beryllium Disease Prevention Program |
| CFR | Coder of Federal Regulations |
| CSO | Cognizant Secretarial Officer |
| D&D | decontamination and decommissioning |
| DEAR | Department of Energy Acquisition Regulations |
| ES&H | Environment, Safety, and Health |
| ETBA | Energy Trace and Barrier Analysis |
| FMEA | Failure Modes and Effects Analysis |
| FTA | Fault Tree Analysis |
| HSS | Office of Health, Safety and Security, Department of Energy |
| HS-11 | Office of Worker Safety and Health Policy |
| ISMS | Integrated Safety Management System |
| ISO/IEC | International Organization for Standardization/International Electrotechnical Commission |
| JSA | Job Safety Analysis |
| NDAA | National Defense Authorization Act |
| NNSA | National Nuclear Security Administration |
| NTS | Noncompliance Tracking System |
| MESP | Model Electrical Safety Program |
| OSHA | Occupational Safety and Health Administration, Department of Labor |
| PHA | preliminary hazard analysis |
| PPE | personal protective equipment |
| TLV [®] | threshold limit value |
| TRADE | Training Resources and Data Exchange |
| TWA | time-weighted average |

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1. INTRODUCTION

Section 3173 of the Bob Stump National Defense Authorization Act amended the Atomic Energy Act for FY 2003 to add section 234C (codified as 42 U.S.C. 2282c), which requires DOE to promulgate worker safety and health regulations that maintain “the level of protection currently provided to ... workers.”

See P.L. No. 107-314 (December 2, 2002).

That level of protection was described by DOE O 440.1A *Worker Protection Management for DOE Federal and Contractor Employees*, dated 03-27-98.

Section 234C also makes a DOE contractor with an indemnification agreement under § 170 (d) of the Atomic Energy Act of 1954, as amended, that violates these regulations subject to civil penalties similar to the authority Congress granted to DOE in 1988 with respect to civil penalties for violations of nuclear safety regulations. DOE did not have authority to impose civil penalties for violations of DOE O 440.1A.

DOE on February 9, 2006 published Title 10, Code of Federal Regulations (CFR), Part 851, “Worker Safety and Health Program” (the Rule) pursuant to DOE’s authority under the Atomic Energy Act of 1954 and subsequent reorganization acts (available at <http://www.nrc.gov/who-we-are/governing-laws.html>).

The Rule replaces the Contractor Requirements Document of DOE O 440.1A and tailored health and safety contractual agreements. This Guide supersedes DOE G 440.1-1, *Worker Protection Management for DOE Federal and Contractor Employees*, dated 07-10-97, for contractor employees. DOE O 440.1 and G 440.1-1 remain in effect for DOE federal employees.

This Guide was developed consistent with DOE M 251.1-1B *Departmental Directives Program Manual* which states that Guides:

- Provide preferred, nonmandatory, supplemental information about acceptable methods for implementing requirements, including lessons learned, suggested practices, instructions, and suggested performance measures;
- Do not impose requirements but may quote requirements if the sources are adequately cited; and
- Provide alternate methods that may be used if it can be demonstrated that they provide an equivalent or better level of performance.

This Guide provides supplemental information and describes implementation practices to assist contractors in effectively developing, managing, and implementing a worker safety and health program required by the Rule. It also suggests compliance and performance expectations for contractor worker safety and health programs to comply with Public Law (P.L.) 107-314, Bob Stump National Defense Authorization Act for FY 2003, section 234C [Title 42, United States

Code (U.S.C.) 2282c], which amends the Atomic Energy Act of 1954 (P.L. 83-703) to require that DOE maintain current levels of worker protection. The Atomic Energy Act of 1954 and subsequent acts are available at <http://www.nrc.gov/who-we-are/governing-laws.html>.)

Specifically, this Guide discusses the regulatory requirements of the Rule, provides cross-references to DOE directives, other Agencies' regulations and literature, and professional organizations' consensus standards, specifications and guidance for implementing the Rule. This Guide provides explanations, with examples, of how to meet the basic requirements for developing and implementing a worker safety and health program. Also included in this Guide as Attachments 1 and 2 are two different examples (Examples A and B) of worker safety and health programs.

Example A consists of a worker safety and health program embedded in the DOE integrated safety management system (ISMS) structure of a nuclear site. This example conveys an overall ISMS program in which worker safety and health is simply one of the many integrated elements. Example B consists of a program that is confined to worker safety and health elements at a non-nuclear site but clearly conveys how the elements link to the DOE integrated safety management system. These examples are meant to demonstrate ways in which a worker safety and health program could be constructed. Many other approaches would be equally valid as long as they address all the requirements of the Rule. These examples DO NOT establish any new requirements and are not the only two approaches for describing a worker safety and health program that is compliant with the Rule.

The Rule establishes the framework for an effective worker safety and health program that provides DOE contractor workers with a safe and healthful workplace in which workplace hazards are abated, controlled or otherwise mitigated in a manner that provides reasonable assurance that workers are adequately protected from identified hazards.

An acceptable worker safety and health program integrates construction safety, fire protection, explosives safety, pressure safety, firearms safety, industrial hygiene, biological safety, occupational medicine, motor vehicle safety, electrical safety and other functions addressed in 10 CFR 851.24 *Functional areas*. Supplemental guidance on the implementation of a comprehensive worker health and safety program can be found in paragraph 3.6 of this Guide which addresses Appendix A to Part 851—*Worker Safety and Health Functional Areas*.

This Guide also presents generally acceptable best practices that are used at DOE sites and at industries having efficient and effective worker safety and health programs. The guidance provided in this Guide allows for contractors to tailor their safety and health programs to effectively implement safety at every organizational level and to integrate safety and other related site-specific worker protection activities into the integrated safety management system [851.11(a)(3)(ii)]. (See Attachments 1 and 2 in this Guide.)

This Guide provides DOE's views on acceptable methods of program implementation and is not mandatory. DOE believes that the Guide can serve as an effective tool in meeting the minimum regulatory requirements of the Rule. Conformance with this Guide will provide reasonable assurance that the employer has complied with the related regulatory requirements. Alternate

methods may be used if it can be demonstrated that they provide an equivalent or better level of performance.

In this Guide, the word “must” designates requirements that are specifically required by the Rule. The words “should,” “could,” and “may” denote optional program recommendations and allowable alternatives.

DOE’s Office of Health, Safety and Security develops and disseminates technical clarifications of the Rule and other worker protection standards. See paragraph 3.1.8 of this Guide. Requests for interpretation of the Rule that exceed the bounds of technical clarification should be forwarded to DOE’s Office of General Counsel. Confine requests to the Office of General Counsel to clarification of real situations since hypothetical situations are difficult to clarify conclusively . (See paragraph 3.1.7 of this Guide.)

This Guide does not establish any requirements legally enforceable pursuant to 10 CFR Part 851. However, it should be noted that the provisions of a contractor’s approved program are enforceable under the Rule. Accordingly, provisions of the Guide that are incorporated into a contractor’s approved program would be enforceable on the contractor’s worksites covered under the approved program.

2. GENERAL INFORMATION

It is DOE policy to provide a safe and healthful workplace for all contractor personnel. These conditions will be ensured by implementing the worker safety and health program established in the Rule.

This Guide is organized consistent with the requirements in the Rule. These requirements reflect what the Department considers the essential elements of a successful worker safety and health program:

- Management responsibilities and worker rights (851.20);
- Hazard identification and assessment (851.21);
- Hazard prevention and abatement (851.22);
- Safety and health standards (851.23);
- Functional areas (851.24);
- Training and information (851.25); and
- Recordkeeping and reporting (851.26).

The Department recognizes that the Rule provides the basic foundation for a worker safety and health program and that some DOE elements or contractors may need or decide to go beyond the Rule's minimum requirements in establishing programs to protect workers from hazards associated with their activities. Decisions concerning implementation of worker protection measures should be based on the use of a graded approach to ensure that available resources are used most efficiently. The Department also recognizes that the worker safety and health program must be integrated into other related site-specific worker protection activities and with the integrated safety management system [851.11(a)(3)(ii)]. (See Attachments 1 and 2 of this Guide for examples.)

The graded approach, a.k.a. tailoring, refers to developing safety controls fitted to the hazards and the work. Additional guidance on using the graded approach, i.e. tailoring, is found in:

- DOE G 450.4-1B *Integrated Safety Management System Guide* Volume 1, Chapter 1, paragraph 3. Tailoring the ISMS, and
- DOE G 450.3-3 *Tailoring for Integrated Safety Management Applications*.

The Rule requires that the heads of DOE field elements review and approve contractors' worker safety and health programs [10 CFR 851.11(b)]. A DOE Cognizant Secretarial Officer (CSO) issued a Standard Review Plan for field offices to use in reviewing contractor submitted worker safety and health programs. That Standard Review Plan is available at http://www.eh.doe.gov/health/rule851/plan_approval.html for other DOE elements to use as a

model to develop their own review plans. DOE's Office of Health, Safety and Security will convert the currently available Standard Review Plan into a formal guidance document so that it remains available and accessible for use in the future.

3. GUIDANCE

3.1. General Provisions (Subpart A)

3.1.1. Scope and Purpose (851.1)

3.1.1.1. Scope

The Rule applies to the conduct of contractor activities at DOE sites [851.1(a)]. A contractor means any entity under contract with DOE, or a subcontractor to such an entity at any tier, and includes any affiliated entity such as a parent organization (851.3). (See paragraph 3.1.3.3 of this Guide for clarification of the definition of contractor.) These activities should include design, construction, operation, maintenance, decontamination and decommissioning, research and development, and environmental restoration activities performed by DOE contractors (and their subcontractors) at covered workplaces except for the exclusions described in 851.2 *Exclusions*. A covered workplace is a place at a DOE site where work is conducted by a contractor to further a DOE mission (851.3).

The Rule directs DOE contractors to perform work in a manner that protects the safety and health of workers, without regard to whether the workers are employed by a contractor engaged in a nuclear activity covered by agreements of indemnification under the Price-Anderson Act, 42 U.S.C. 2210(d) or are engaged in a non-nuclear activity. DOE's authority to impose civil penalties, however, applies only to contractors, and their subcontractors and suppliers, covered by agreements of indemnification under the Price-Anderson Act, which, in turn, requires DOE to include an agreement of indemnification in every contract that has the potential to involve any activity with any risk of a nuclear incident. Hence, DOE can impose civil penalties for violations of requirements of this Rule, but only against contractors covered by an agreement of indemnification and their subcontractors and suppliers. DOE will continue to use contractual penalties to foster compliance with this Rule by contractors and their subcontractors that are not covered by an agreement of indemnification.

DOE's Office of Enforcement, will use its voluntary Noncompliance Tracking System (NTS), which allows contractors to elect to report noncompliance to provide incentives to contractors for voluntarily reporting instances of noncompliance. (See Appendix B to Part 851—*General Statement of Enforcement Policy*, IX.5. *Self-Identification and Tracking Systems* for more information.) The Office of Enforcement currently uses the NTS for noncompliance with requirements for nuclear activities. Title 10 CFR 851 NTS Reporting Thresholds for reporting noncompliance of potentially greater worker safety and health significance into the NTS are available from a link on <http://www.eh.doe.gov/enforce/index.html>. The NTS is described in the guidance document, Enforcement Program Plan, also available from a link at <http://www.eh.doe.gov/enforce/index.html>. Contractors are expected, however, to use their own self-tracking systems to track noncompliance below the reporting threshold.

The Rule integrates the Chronic Beryllium Disease Prevention Program (CBDPP), established under 10 CFR 850, as an integral part of the worker safety and health

program. In addition, to ensure consistency, 10 CFR 850 was amended to clarify that the CBDPP supplements the worker safety and health program under Part 851 and the CBDPP is enforceable under 10 CFR 851. DOE may take steps pursuant to Part 851 to enforce compliance by contractors with any DOE-approved CBDPP.

The Rule applies to sites that are the responsibility of DOE's National Nuclear Security Administration (NNSA).

3.1.1.2. Purpose

The purpose of the Rule is to establish safety and health requirements that a contractor responsible for a covered workplace must implement through a worker safety and health program that provides its workers with a safe and healthful workplace in which workplace hazards are abated, controlled or otherwise mitigated in a manner that provides reasonable assurance that workers are adequately protected from recognized hazards. The Rule also provides procedures for investigating whether a violation of a requirement has occurred, for determining the nature and extent of any such violation, and for imposing an appropriate remedy [851.1(b)].

The Rule complements DOE's nuclear safety requirements. Personnel responsible for implementing worker protection and nuclear safety requirements should coordinate and cooperate in instances where the requirements overlap. The two sets of requirements should be integrated and applied to guard against unintended results and provide reasonable assurance of adequate worker protection. For example, control measures to minimize personnel radiation exposure should be reviewed to ensure that the workers are not subjected to life-threatening asphyxiation or fire hazards.

3.1.2. Exclusions (851.2)

The Rule applies to the conduct of contractor activities at DOE sites except for sites:

- Regulated by the Occupational Safety and Health Administration (OSHA) on or after February 9, 2006, or
- Operated under the authority of the Director, Naval Nuclear Propulsions, pursuant to Executive Order 12344, as set forth in Public Law 98525, 42 U.S.C. 7158 note.

The Rule does not apply to an organization that is working at a DOE site but that is regulated by OSHA. Examples of these types of organizations are other federal organizations and organizations conducting work on a DOE site under a Community Re-Use arrangement. DOE contractors should brief the OSHA covered organization's representatives on the site hazards and the contractor's worker safety and health program prior to the commencement of work. for the protection of those workers and to avert those workers from creating hazards to DOE contractor workers.

The Rule does not apply to—

- Radiological hazards or nuclear explosives operations to the extent regulated by 10 CFR Parts 20, 820, 830 or 835; or
- DOE activities performed away from a DOE site;
- Transportation activities to and from a DOE site.

The Rule excludes radiological hazards to the extent they are already regulated by the DOE nuclear safety requirements in 10 CFR parts 820, 830, and 835. These existing rules already deal with radiological hazards in a comprehensive manner through methods such as the Quality Assurance Program Plan, the Safety Basis, the Documented Safety Analysis, and the Radiation Protection Program Plan. (The Rule does not exclude non-ionizing radiation.)

3.1.3. Definitions (851.3)

Part 851.3 of the Rule establishes definitions and terms used throughout the Rule. Further discussion of several key terms is provided below. Part 851.3(b) clarifies that terms that are undefined in the Rule but are defined in the Atomic Energy Act (AEA) of 1954 have the same meaning as under the AEA of 1954.

3.1.3.1. Closure Facilities

The Rule defines closure facility as “a facility that is non-operational and is, or is expected to be permanently closed and/or demolished, or title to which is expected to be transferred to another entity for reuse.” Part 851 permits the head of the appropriate DOE field element, with the concurrence of the Cognizant Secretarial Officer, to accept hazard controls in closure facilities that are not otherwise fully compliant with the Rule. (See 851.21(b).) The Rule’s closure facility provision may not be used to obtain relief from the Rule’s requirements unless the facility is non-operational. Closure facilities may include portions of facilities that are isolated from operations and meet the Rule’s definition of closure facility. A large canyon facility that is no longer operational but contains a small repackaging operation is an example of a portion of a facility that could be designated as a closure facility. Closure facility provisions of the Rule would not apply to the operational portion of the facility. In facilities that are operational (and, therefore, are not closure facilities), contractors may apply for a variance pursuant to Subpart D of the Rule (paragraph 3.4 of this Guide) to seek relief from requirements of the Rule. In addition, contractors may use equivalencies granted by an Authority Having Jurisdiction (see paragraph 3.3.4.1 of this Guide) when applicable to a requirement in a standard or code that contains the Authority Having Jurisdiction and equivalency provisions.

3.1.3.2. Closure Facility Hazard

Closure facility hazard refers only to those facility-related conditions within a closure facility involving deviations from the technical requirements of 851.23 of the Rule that would require costly and extensive structural and/or engineering modifications to be in

compliance. Closure facilities may have other hazards in addition to closure facility hazards.

3.1.3.3. Contractor

A *contractor* is any entity, including affiliated entities, such as a parent corporation, under contract with DOE, including a subcontractor at any tier, with responsibility for performing work at a DOE site in furtherance of a DOE mission.

3.1.3.3.1. Under Contract with DOE

The term “DOE contractor” must be read in the context of the additional regulatory definition language: “that has responsibilities for performing work at a DOE site.” (See 851.3.) This language dictates that a “DOE contractor” for purposes of the Rule, must have a contract to perform services, as opposed to merely providing supplies, in order to come within the scope of the Rule. Consequently, a DOE contractor, for the purposes of the Rule, includes any contractor under a contract with DOE to perform services, or a subcontractor to such contractor, at any tier, that performs work at a DOE site “in furtherance of a DOE mission.” Size is not a relevant factor in determining whether an entity is a DOE contractor for the purposes of the Rule. Consequently, an individual can fit within the definition as readily as can a large corporation employing many thousands of people. The definition of contractor includes professional contractors, including entities with DOE contracts entered pursuant to § 8(a) of the Small Business Act, codified at 15 U.S.C. § 637 (a) (cf. 48 CFR Subpart 19.8) as well as all other types of contractual arrangements with those whom DOE has a direct contractual relationship for work to be performed at a DOE site.

The definition of contractor also may include other entities that have agreements that are contractual in nature with DOE or its contractors. Consult with DOE’s Office of General Counsel to determine whether parties to agreements with DOE or DOE contractors are considered contractors and therefore within the scope of the Rule. Confine requests to the Office of General Counsel to clarification of real situations since hypothetical situations are difficult to clarify conclusively .

3.1.3.3.2. Furtherance of a DOE Mission

The term “in furtherance of a DOE mission” means that the contractor is doing work that DOE authorized.

3.1.3.3.3. Vendors

Vendors, delivery persons and others who do not have service contracts with DOE, or who are not subcontractors to such contractors, are excluded from the requirements of Part 851 and their employers are not required to develop and implement a DOE-approved WSHP.

3.1.3.3.4. Suppliers

Sec. 851.5 (a), *Enforcement*, provides that "A contractor that is indemnified under section 170d of the AEA (or any subcontractor or supplier thereto) and that violates (or whose employee violates) any requirement of this part shall be subject to a civil penalty of up to \$70,000 for each such violation." (This regulatory language is consistent with the related statutory provisions at 42 U.S.C. § 2282c (b)(1)). Although the enforcement provisions of Part 851 refer to imposing civil penalties for suppliers who violate the requirements of Part 851, the scope of the regulation indicates that the requirements of the Rule do not apply to suppliers. (See 851.1, *Scope*: "(a) the worker safety and health requirements in this part govern the conduct of contractor activities at DOE sites. (b) This part establishes the: (1) Requirements for a worker safety and health program that reduces or prevents occupational injuries, illnesses, and accidental losses by providing DOE contractors and their workers with safe and healthful workplaces at DOE sites; and (2) Procedures for investigating whether a violation of a requirement of this part has occurred, for determining the nature and extent of any such violation, and for imposing an appropriate remedy"). "Contractor" is defined at 851.3 as "any entity . . . under contract with DOE, or a subcontractor at any tier, that has responsibilities *for performing work* at a DOE site in furtherance of a DOE mission." [emphasis added] Since suppliers would, at most, engage in no more than tangential work at a DOE site relating to delivery, installation or repair of the products, suppliers are not considered "contractors" for the purposes of the Rule. Therefore, suppliers (who do not also have contracts with DOE to provide services at a DOE site) cannot "violate[] . . . any requirement of Part 851" (see 851.5 (a)) because the requirements do not apply to them. Consequently, as a practical matter, DOE cannot impose civil penalties for suppliers' failure to comply with those requirements.

3.1.3.3.5. Utility Providers

Utility providers, such as power or communications providers that may have power or communications lines installed on-site to serve the facility, are covered under 48 CFR (FAR) Part 41 and are not considered service contractors for the purposes of Part 851. They operate under supply contracts rather than contracts for services and, therefore, are not subject to Part 851. As in the case of a soft drink vendor or delivery person, the fact that utility employees must sometimes come on site to service such things as power or communications lines does not convert the contract into a service contract.

3.1.3.3.6. Commercial Items

The preamble to the Rule on page 6869 indicates that the definition of contractor in the Rule does not apply to contractors or subcontractors that provide only "commercial items" as defined in the Federal Acquisition Regulations (FAR). However, the Rule does not explicitly address providers of only commercial items. The Rule's definition of contractor, i.e., *A contractor is any entity, including affiliated entities, such as a parent corporation, under contract with DOE, including a subcontractor at any tier, with responsibility for performing work at a DOE site in furtherance of a DOE mission*, is the controlling definition in any apparent contradiction with the FAR definition. Consult DOE's Office of General Counsel to clarify if an entity that provides items to DOE or DOE contractors is included in the definition of contractor in the Rule. Confine requests

to the Office of General Counsel to clarification of real situations since hypothetical situations are difficult to clarify conclusively. Also, see related discussions in paragraphs 3.1.3.3.3. *Vendors* and 3.1.3.3.4 *Suppliers* in this Guide.

3.1.3.3.7. Landlords of DOE Contractor Leased Off-Site Space

Landlords of off-site space that is leased by DOE contractors for DOE work would not come under the definition of “contractor” for the purposes of the Rule. These landlords provide a facility but do not perform work in furtherance of a DOE mission.

3.1.3.3.8. Universities with DOE Cooperative Agreements

A DOE contractor, for the purposes of 10 CFR Part 851, includes any contractor under a contract with DOE to perform services, or a subcontractor to such contractor, at any tier, that performs work at a DOE site in furtherance of a DOE mission. Generally, cooperative agreements are transactions made pursuant to DOE’s “financial assistance” regulation (10 CFR Part 600) and are not procurement contracts. However, it is possible that there are cooperative agreements that have some procurement contract terms. Those particular agreements (if they involve work at a DOE site) should be referred to DOE’s Office of General Counsel for a case-by-case review to determine whether the Rule applies.

3.1.3.3.9. Off-site Fire Departments

Off-site local government and volunteer fire departments provide fire and emergency response services for some DOE sites. Some DOE sites use contracts with these groups to obtain fire and emergency response services in which case those providers are contractors and subject to the Rule. The Rule would only apply to those services performed at a DOE site. Often there is some form of agreement other than a contract between DOE or a DOE contractor and the off-site fire departments in which case, depending on the terms of the agreement, those providers may not be considered contractors. DOE field offices may wish to evaluate if they are using the most appropriate arrangement for obtaining these services. DOE field offices may wish to consult DOE’s Office of General Counsel if uncertain whether a particular agreement for fire and emergency services is tantamount to a contract and therefore within the scope of the Rule. Confine requests to the Office of General Counsel to clarification of real situations since hypothetical situations are difficult to conclusively clarify. DOE’s Office of Enforcement addresses enforcement of the Rule with respect to fire and emergency response services providers in their Enforcement Program Plan, available from a link at <http://www.eh.doe.gov/enforce/index.html>.

3.1.3.3.10. Academics Working On Site Under Grants

College and university staff and students working at a DOE site under a DOE grant are not working under a service contract with DOE and are not, therefore, subject to the Rule. DOE contractors should brief academic personnel on the workplace hazards and worker safety and health program prior to commencement of their work in order to protect the academic personnel and to avert those personnel from creating hazards to DOE contractor workers.

3.1.3.3.11. State and Municipal Highway Departments

State and municipal highway departments on site to maintain roads passing through DOE property are not DOE contractors for the purposes of the Rule.

3.1.3.3.12. Work for Others

Contractors at many DOE sites perform Work-for-Others (WFO) activities. These activities are performed under a contract with DOE to perform services at a DOE site in furtherance of a DOE mission and, therefore, are covered by the Rule.

3.1.3.3.13. Other Federal Agencies

Federal agencies do not have contracts with DOE and, therefore, are not subject to the Rule. However, other Federal agencies are required under § 19 (a) of the Occupational Safety and Health Act of 1970, codified at 29 U.S.C. § 668 (a) “to establish and maintain an effective and comprehensive occupational safety and health program” and to “provide safe and healthful places and conditions of employment” for their federal employees. Federal Agencies (“except military personnel and uniquely military equipment, systems and operations”) are also required by Executive Order 12196 to adhere to OSHA regulations promulgated for that purpose (see 29 CFR Part 1960) and may be subject to inspections by OSHA. Contractors working under contract with these agencies would be subject to OSHA unless they are subject to another federal regulator (see OSH Act § 4 (b) (1), codified at 29 U.S.C. § 653 (b) (1): “Nothing in this chapter shall apply to working conditions of employees with respect to which other Federal agencies, and State agencies acting under section 2021 of title 42, exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health.”) Examples of non-DOE federal organizations performing work on DOE sites include the Department of Homeland Security, the Department of Defense, the Department of Interior, and the Environmental Protection Agency. When a DOE contractor supports a non-DOE federal organization pursuant to a contract with DOE on a DOE site, the contractor’s work is covered by the Rule. (See 3.1.3.3.12. *Work for Others*, above). When a non-DOE contractor is performing work for a non-DOE federal organization on a DOE site, that contractor’s work is not covered by the Rule. When a non-DOE federal organization or its non-DOE contractor is performing work on a DOE site, DOE contractors should brief the non-DOE organizations’ representatives on the site hazards and worker safety and health program prior to commencement of their work in order to protect those organizations’ workers and to avert those workers from creating hazards to DOE contractor workers.

3.1.3.3.14. Visitors at User Facilities

Many DOE sites host work that private organizations perform in DOE provided facilities. Those private organizations typically are not operating under a contract with DOE and therefore their activities and employees are not within the scope of the Rule. DOE contractors should brief the private organization’s representatives on the workplace hazards and worker safety and health program prior to commencement of their work in order to protect the private organization’s workers and to avert those workers from creating hazards to DOE contractor workers.

3.1.3.4. Covered Workplace

Covered workplace means a place at a DOE site where a contractor is responsible for performing work in furtherance of a DOE mission.

3.1.3.4.1. DOE Property Leased for Private Sector Purposes

DOE sometimes leases to private sector organizations facilities on DOE property that are used by those organizations for their own purposes. Those facilities are not occupied by DOE contractors engaged in the furtherance of a DOE mission and therefore are not within the scope of the Rule.

3.1.3.5. DOE Site

DOE site means a DOE-owned or -leased area or location or other area or location controlled by DOE where activities and operations are performed at one or more facilities or places by a contractor in furtherance of a DOE mission. DOE contractor workers often engage in activities in furtherance of DOE missions at locations that are not owned or leased by DOE. Those activities can be quite diverse, and may occur at other federal and state facilities, private company facilities, educational facilities, in foreign countries, upon oceans and rivers, or at other locations. Even when such activities are in furtherance of DOE missions, most of these locations are not owned, leased, or controlled by DOE or its contractors and therefore these activities are not within the scope of the Rule. See paragraph 3.1.3.5.2 of this Guide for information about what constitutes DOE control of an off-site location.

3.1.3.5.1. DOE Contractor-Owned or -Leased Off-Site Location

Space that is owned or leased by a DOE contractor for the conduct of DOE work activities is not a DOE site because it is not owned or leased by DOE with an exception. The exception is that space that is owned or leased by a DOE contractor for the conduct of DOE work activities is a DOE site within the scope of 10 CFR 851 if DOE controls the space. Where DOE does not control the space, it would be outside the scope of the Rule and subject instead to federal OSHA regulations. See paragraph 3.1.3.5.2 of this Guide for more information about DOE control of off-site locations.

3.1.3.5.2. Sites Controlled by DOE

As mentioned above in paragraph 3.1.3.5 of this Guide, DOE site means a DOE-owned or -leased area or location or other area or location controlled by DOE where activities and operations are performed at one or more facilities or places by a contractor in furtherance of a DOE mission.

“Sites controlled by DOE” refers to other areas or locations controlled by DOE where work is performed by a contractor in furtherance of a DOE mission. Those sites could be outside of DOE-owned or -leased property.

DOE exercises its authority under the AEA. The heads of the DOE field elements and their respective CSOs should consult DOE’s Office of General Counsel and coordinate

with federal OSHA to determine whether DOE can or should exercise the AEA authority for specific off-site facilities. Confine requests to the Office of General Counsel to clarification of real situations since hypothetical situations are difficult to conclusively clarify. Landlord activities for a leased facility would not be within the scope of the Rule because they are not performing work in furtherance of a DOE mission even if DOE exercised its authority under the AEA to regulate worker safety and health at that facility.

In addition, workers in facilities, including workers in facilities on DOE property, that have been identified as being under OSHA jurisdiction pursuant to a Memorandum of Understanding (MOU) between DOE and OSHA established in 1992 (see, e.g., 71 FR 36988, June 29, 2006) are clearly not under DOE control of worker safety and health, and are explicitly excluded from the scope of the Rule (851.2 *Exclusions*). The 851.2 exclusion only applies to sites and facilities that are regulated by federal OSHA. The Rule does not include exclusions for other state or federal agencies that may have regulations addressing worker safety and health except as listed in 851.2.

Other area or location controlled by DOE. This component of the definition of DOE site refers to locations controlled by DOE where activities and operations are performed at one or more facilities or places by a contractor in furtherance of a DOE mission. The fact that the contractor is performing DOE work is not sufficient to render the location a DOE site. DOE control of an area or location rests on two conditions that both must be met:

- the contractor must be performing activities or operations in furtherance of a DOE mission; and
- DOE exerts some element of control over the area or location.

In general, any work authorized by DOE and performed by a DOE contractor is in furtherance of a DOE mission however, exerting some element of DOE control may be more difficult to determine. On the one hand, DOE may exert no control over a DOE contractor's arrangement for space in which case worker safety and health at that location would not be within the scope of the Rule. On the other hand, DOE may establish requirements for, and approve, a lease before the DOE contractor signs it in which case DOE exerts a significant level of control over that location and worker safety and health at that location is therefore within the scope of the Rule. Heads of DOE field elements may wish to consult DOE's Office of General Counsel to determine whether DOE exerts sufficient control over a DOE contractor's owned or leased space for the Rule to apply. DOE field elements should provide the Office of General Counsel with a description of a real situation for evaluation rather than a generic possible situation. Contractors should assume that their owned or leased space is within the scope of the Rule if DOE exerts any element of control of that space until the Office of General Counsel has made a ruling in order to assure proper protection of the DOE contractor's employees.

3.1.3.5.3. Contractor in Sold and Leased-Back Building

DOE sometimes sells property to a private company that constructs a building and leases it back to DOE for occupancy by DOE contractors. The construction of the building is not performed under contract with DOE, that work is not within the scope of the Rule and, therefore, its provisions do not apply. Under these circumstances, federal OSHA or the state regulatory agency operating under a federal OSHA-approved state plan would have jurisdiction during construction of the building. Once the facility becomes a DOE-leased facility with DOE contractor employees working in the facility, the operations in the building would be within the scope of the Rule and, therefore, the Rule would apply.

3.1.4. Compliance Order (851.4)

Section 851.4 of the Rule describes the purposes of issuing compliance orders. These purposes include identifying situations that violate, potentially violate, or are inconsistent with the Rule and mandating a remedy, work stoppage or other action. The section also clarifies that compliance orders constitute final orders, that modifications or rescissions must be requested within 15 days, and that these requests for modifications do not automatically stay the effect of the order unless formally stayed. The section further establishes the requirement for posting of the compliance order.

It should be noted that the authority established in the regulation to use compliance orders to stop work is independent from contract provisions. Compliance orders by the Secretary represent an exercise of AEA authority. DOE intends, however, that all mandated work stoppages (whether issued through a compliance order or as a result of the lack of an approved program) would be implemented in close coordination with the DOE field office and the contracting officer with proper consideration given to mission and safety critical operations and the continued safety of other workplace activities.

3.1.5. Enforcement (851.5)

Part 851.5 of the Rule establishes enforcement provisions for the Rule, which allow DOE to employ either civil penalties or contractual mechanisms such as reduction in fees when a contractor fails to comply with Rule provisions. DOE's Office of Enforcement can start enforcement of the Rule through civil penalties on February 9, 2007. See Office of Enforcement's Enforcement Program Plan, available from a link at <http://www.eh.doe.gov/enforce/index.html>, for additional guidance on enforcement of the Rule.

DOE's Office of Enforcement will use DOE's voluntary Noncompliance Tracking System (NTS), which allows contractors to elect to report noncompliance. See Appendix B to Part 851—*General Statement of Enforcement Policy, IX.5. Self-Identification and Tracking Systems* for more information. The Office of Enforcement currently uses the NTS for noncompliance with requirements for nuclear activities. Title 10 CFR 851 NTS Reporting Thresholds for reporting noncompliance of potentially greater worker safety and health significance into the NTS are available from a link on <http://www.eh.doe.gov/enforce/index.html>. The NTS is described in the guidance

document, Enforcement Program Plan, also available from a link at <http://www.eh.doe.gov/enforce/index.html>. Contractors are expected, however, to use their own self-tracking systems to track noncompliance below the reporting threshold.

3.1.6. Petitions for Generally Applicable Rulemaking (851.6)

Section 851.6 of the Rule sets forth procedures for petitions to initiate generally applicable rulemaking to amend or interpret the provisions of the Rule. These procedures are very detailed and describe the right to file petitions; how to file petitions; and the required content of and determination on, petitions.

3.1.7. Requests for a Binding Interpretative Ruling (851.7)

Section 851.7 of the Rule provides for requests for interpretive rulings applying the regulations to a particular set of facts and providing an interpretation that is binding on DOE but only with respect to the party requesting the ruling. The Office of General Counsel is responsible for formulating and issuing any binding interpretation of the requirements of the Rule. Section 851.7 provides detailed procedures for requesting binding interpretive rulings. Confine requests to the Office of General Counsel to clarification of real situations since hypothetical situations are difficult to conclusively clarify.

3.1.8. Informal Requests for Information (851.8)

DOE's Office of Worker Safety and Health Policy, HS-11, develops and disseminates technical clarifications of the Rule and other worker protection standards.

Contractors may request informal clarifications of Rule provisions instead of applying for binding interpretive rulings. Informal clarifications offer the benefit of a less formal process to obtain a quicker response. They are appropriate for issues involving clarification of how a technical requirement of the Rule applies in a specific case where the intent of the technical requirement is clear and well established. However, a binding interpretive ruling by the General Counsel (issued under 851.7) would be more appropriate in situations where it is not clear how the requirement of the Rule applies to a unique situation or workplace condition not specifically envisioned in the drafting of the Rule.

As provided in the Rule, informal information provided to a contractor under 851.8 would be non-binding on DOE in that DOE's Office of Enforcement may take enforcement action against the contractor if the contractor's actions are consistent with the informal information provided to the contractor, but the Office of Enforcement subsequently has determined do not meet Rule requirements.

The Standards Interpretations Response Line has been established to provide information on technical safety and health requirements, requirements published by OSHA, and other adopted standards. Contractors who would like clarification of the Rule beyond what is found in this Guide may submit a request to the Safety and Health Standards Response

Line at <http://www.eh.doe.gov/rl/>. This web site allows users to submit new requests as well as search for and access previous technical clarifications.

The responses given by HS-11 are advisory and not binding on DOE. In cases where the information is related to OSHA standards, HS-11 consults the existing body of OSHA interpretations on these standards. HSS also consults with OSHA representatives if OSHA interpretations do not address a unique DOE question or circumstance.

3.2. Program Requirements (Subpart B)

3.2.1. General Requirements (851.10)

The Rule requires contractors to provide a place of employment that is free from recognized hazards that are causing or have the potential to cause death or serious physical harm to workers [851.10(a)(1)]. This provision of the Rule was carried over from DOE Order 440.1A and closely parallels the OSHA general duty clause established in Section 5(a)(1) of the OSH Act of 1970 (29 U.S.C. 654) which establishes OSHA's general duty clause. Accordingly, in implementing this provision, contractors should consider criteria similar to those established by OSHA for the implementation of the general duty clause. Specifically, in determining whether a workplace condition presents a recognized hazard that is causing or has the potential to cause death or serious physical harm to workers, contractors should consider whether:

- The condition presents a hazard to which workers are exposed (e.g., the hazard exists and workers are exposed to the hazard);
- The hazard is a recognized hazard (e.g., the hazard is identified and addressed in a recognized industry consensus standard, or other credible industry guidance or documentation);
- The hazard is causing or is likely to cause death or serious physical harm; and
- Feasible and useful methods exist to correct the hazard.

The terms "feasible" and "serious physical harm" are subjective terms the meanings of which depend on the specific context in which the terms are used. The meanings of these terms in a situation should be determined by DOE line management starting with the head of the DOE field element and progressing to the Under Secretary depending on the impact of the meanings. DOE line managers should obtain input from safety and health professionals and other relevant subject matter experts in making their determinations.

The Rule requires contractors to comply with the applicable requirements of the Rule and their approved worker safety and health program [851.10(a)(2)] for the contractor's workplace. All work performed by contractors or subcontractors in a covered workplace must comply with Subpart C *Specific Program Requirements* of the Rule [851.13 (a)]. Contractors must establish a written program that describes how the contractor will comply with the requirements in Subpart C of the rule that are applicable to the hazards

associated with the contractor's scope of work as well as the provisions of any compliance order (see 851.4) issued by the Secretary [851.10 (b)]. In addition, the Rule states at 851.23(b) that nothing in this part must be construed as relieving a contractor from complying with any additional specific safety and health requirement that it determines to be necessary to protect the safety and health of workers.

3.2.2. Development and Approval of the Worker Safety and Health Program (851.11)

The Rule establishes the procedures for contractor coordination, submission, DOE approval, updates, and labor organization notification of the written worker safety and health program. The written program must provide the methods for implementing the requirements of Subpart C of the Rule [851.11)(a)]. See paragraph 3.3 of this Guide for more detailed guidance on the requirements of Subpart C of the Rule. The written program should describe integrated management organization and support systems that fully satisfy the requirements of the Rule. It should clearly convey the framework for the program and describe how the program works. All elements of the safety and health program should be included in, or explicitly referenced by, the written program. The Rule at 851.10(b) states: *The written worker safety and health program must describe how the contractor complies with the:.... requirements* of Subpart C. This description should be a high level description of the program that gives the overall structure of the program and identifies the lower tiered and complimentary policies, programs, and procedures that, combined with the high level description, constitute the full program. Attachments 1 and 2 to this Guide are two different examples (Examples A and B) of worker safety and health programs that are compliant with the Rule.

All contractors and subcontractors at any tier are covered under the Rule's definition of contractor and therefore must be included in some fashion in an approved written worker safety and health program. The components of the written program addressing subcontractors and small DOE contractors may be tailored to the hazards and complexity of the work and the capabilities of the subcontractor or small DOE contractor.

3.2.2.1. Methods of Complying

Contractors, including small direct DOE contractors, can use a variety of generic contract provisions tailored to the work, type and level of hazard, and capabilities, of their organization or their subcontractor's organization to provide a compliant worker safety and health program for workers while minimizing administrative burdens.

3.2.2.1.1. Subcontractors

Prime contractors will find that including the subcontractor's safety and health program directly in the prime's WSHP, or including it as a separate component embedded in the prime's WSHP, is an effective approach to ensuring that the worker safety and health program for subcontractor workers is compatible with the prime's WSHP and is approved by DOE. The Rule does not prohibit prime contractors from allowing subcontractors to submit their own WSHP to DOE for approval but this approach could result in potential discrepancies between the prime contractor's and the subcontractor's WSHPs and

potential confusion over DOE expectations since DOE holds the prime contractor responsible for the subcontractor's performance.

A subcontractor can be included directly in the prime contractor's WSHP, the prime contractor can require the subcontractor to prepare and submit a separate WSHP that the prime contractor approves and includes in its submission to DOE, and the prime contractor can develop templates of generic WSHPs tailored for different types of narrow-scope work that are pre-approved by DOE and require subcontractors to accept the relevant generic WSHPs. For example, a prime contractor may have a generic safety and health program that is placed in all subcontracts for specialized radiation contamination surveys that is a component of the prime contractor's DOE-approved WSHP. Each subcontract that contains this provision would not need additional DOE approval.

Prime contractor approval of subcontractors' WSHPs signifies that the prime contractor is satisfied that all relevant Rule requirements are met but does not constitute the DOE approval required by the Rule. Only DOE can approve a prime contractor's or subcontractor's WSHP. Embedding in some fashion the WSHP that applies to subcontractors in the prime contractor's WSHP allows a DOE-approved WSHP to cover both the prime contractor and subcontractors. Subcontractors must assure that their WSHP is approved by DOE either as part of the prime's approved WSHP or as a separate WSHP. Subcontractors may be subject to enforcement action [851.5] for failure to comply with 851.11(b)(1) *Beginning May 25, 2007, no work may be performed at a covered workplace unless an approved worker safety and health program is in place for the workplace.*

Although subcontractors at any tier are responsible for compliance with the requirements of this Rule, it is important that prime contractors include provisions in their subcontract documents to ensure that subcontractors comply with the standards in 851.23 and functional areas in Appendix A as well as other requirements that may be needed to protect workers but were not included in the requirements that flowed down from the prime contractor. Title 48 CFR 970.5223-1 at (h) states that regardless of the performer of the work, the prime contractor is responsible for compliance with the environment, safety and health requirements applicable to the contract. (Prime contractors are not responsible for other prime contractors', or other prime contractors' subcontractors', compliance with the Rule.) Under this procurement regulation requirement, the prime contractor is responsible for flowing down the worker safety and health requirements applicable to the contract to subcontracts at any tier to the extent necessary to ensure the prime contractor's compliance with the requirements. Prime contractors must determine which program requirements should flow down into contracts with their subcontractors and incorporate appropriate requirements. The prime contractor's WSHP should describe the approach and process used to flow down its relevant WSHP requirements to subcontractors. All requirements in the Rule must be met, regardless of whether the prime contractor or the subcontractor performs the actual worker protection activity. For example, a prime contractor may provide exposure monitoring and medical surveillance

for the subcontractor, or the prime contractor may require the subcontractor to conduct its own exposure monitoring and medical surveillance.

The Rule states that “The written worker safety and health program must describe how the contractor complies with the requirements set forth in Subpart C of this part that are applicable to the hazards associated with the contractor’s scope of work” [10 CFR 851.10(b)(1)]. Subcontractor’s work is within the prime contractor’s scope of work. Therefore, the prime contractor must inform the subcontractor of the hazards associated with the subcontractor’s scope of work so that the subcontractor is able to provide or adopt a compliant WSHP. The prime contractor also must describe in its WSHP how the subcontractor’s WSHP meets the requirement of the Rule. DOE looks to the prime contractor for ensuring compliance by its subcontractors at the site. If the subcontractor will work to its own WSHP, the prime contractor must review the subcontractor’s program to verify consistency with the parent WSHP and should inform the subcontractor of the Rule’s requirement for DOE approval of the subcontractor’s WSHP (either as a component of the contractor’s WSHP or as a separate WSHP) and relevant enforcement provisions.

DOE prime contractors should note that all subcontractors and suppliers of an indemnified contractor are considered indemnified contractors, and as such may be subject to either civil penalties or contract penalties under the Rule. (As a practical matter, DOE cannot impose civil penalties for suppliers’ failure to comply with the Rule. See paragraph 3.1.3.3.4 *Suppliers* of this Guide for more information about the applicability of the Rule to suppliers.) DOE will consider the specific circumstances in a given case to determine appropriate enforcement actions in cases involving contractors and their subcontractors.

3.2.2.1.2. Small DOE Contractors

A small DOE contractor can submit its own WSHP to DOE for approval. DOE elements may find it useful to have templates of generic WSHPs tailored for different types of narrow-scope work and have small DOE contractors accept the relevant generic WSHPs as a condition of their contract. Another option for small DOE contractors is for the contractor to submit to DOE for approval a WSHP that is modeled on the relevant components of the DOE field office’s Federal Employee Occupational Safety and Health Program (FEOSH). In this approach, the small DOE contractor would manage its own WSHP that has components that were “cut and pasted” from the DOE FEOSH Program.

3.2.2.2. WSHP Coordination [10 CFR 851.11(a)(2)(ii)]

All contractors and subcontractors must coordinate to ensure clear roles, responsibilities and procedures to achieve an integrated approach to ensuring the safety and health of the worker consistent with 10 CFR 851.11(a)(2)(ii). When multiple contractors, subcontractors, and federal organizations are working on the same DOE site, resolving safety and health issues between the organizations can be confusing. For this reason, clear statements of roles and responsibilities with respect to compliance with worker safety and health program requirements, and mechanisms for resolution of these issues

should be clearly defined. Good lines of communication between the affected parties are essential and should be included in agreements between the parties. The nature and extent of the organizational relationships vary from situation to situation. The need for a firmly established agreement between affected parties regarding worker safety and health program requirements is essential. Cognizant Secretarial Officers (CSO) and heads of DOE field elements should evaluate the need for and, where necessary, support the development of formal written agreements between organizations on their sites. Such agreements would outline the respective roles, responsibilities, and authorities of each contractor or organization as they relate to compliance with all components of the worker safety and health program and the resolution of cross-cutting worker protection related issues. Coordination agreements need not be highly detailed as long as roles, responsibilities and procedures are sufficiently addressed to assure that the Rule consistently is implemented.

Some common written instruments used at DOE facilities to document and communicate agreements between multiple organizations are the contract, the lease agreement (for tenant organizations), the Memorandum of Understanding (MOU), the Memorandum of Agreement (MOA), and the Intraservice Support Agreement (ISA). Authorization Agreements used at high hazard nuclear facilities may also provide a vehicle for clarifying worker safety and health roles and responsibilities. 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 in the written worker safety and health program to ensure that they are adequately communicated throughout the site.

DOE contractor workers sometimes work at other sites operated by other DOE contractors. The WSHP of the contractor that employs the guest worker is applicable to that worker and that contractor should coordinate with the host contractor to ensure that the relevant provisions of both contractors' WSHPs are consistent for the guest worker's activities. In addition, the host should require that its WSHP be complied with by guest workers. It is reasonable to expect a high level of consistency between DOE contractor's WSHPs so simply having the guest worker comply with the host's WSHP should satisfy the Rule's requirements for most activities.

3.2.2.3. WSHP Integration [851.11(a)(3)(ii)]

The worker safety and health program must integrate the Rule's requirements with other site worker protection activities and the integrated safety management system (ISMS) [851.11(a)(3)(ii)]. Coordination should be established, maintained, and documented among worker safety and health technical disciplines and other safety and health organizations (e.g., radiation control) at a site to ensure successful implementation of the worker safety and health program. Examples A and B at the end of this Guide provide two different approaches that may be used in describing a worker safety and health program that is compliant with the Rule and consistent with the DOE integrated safety management system structure. Additional information concerning DOE expectations for integrating safety management can be found in Department of Energy Acquisition Regulations (DEAR) clause 48 CFR 970.5223-1, *Integration of Environment, Safety and*

Health into Work Planning and Execution (available by searching on <http://professionals.pr.doe.gov/ma5/MA-5Web.nsf/Procurement/Acquisition+Regulation?OpenDocument>), which states at (c) *the contractor shall manage and perform work in accordance with a documented Safety Management System (System)*.

The written program also must address and integrate into the worker safety and health program the applicable requirements contained in the worker safety and health functional areas in Appendix A to the Rule (construction safety, fire protection, explosives safety, pressure safety, fire arms safety, industrial hygiene, biological safety, occupational medicine, motor vehicle safety, electrical safety, nanotechnology safety, workplace violence). See paragraph 3.6 of this Guide for more guidance on these functional area program requirements. The contractor should explain the relationship of other documentation that is not directly part of its worker safety and health program but is relevant for integration of the program (e.g., policy, objectives, and operating procedures) and interfaces with other functions (e.g., finance, maintenance, and security).

3.2.2.4. DOE Evaluation and Approval [851.11(b)]

Part 851.11(b) provides DOE evaluation and approval procedures including identifying the reviewing and approval authority, the timeline for the approval process and activities and procedures following approval or lack of approval of the program.

Transition periods between contractors must be covered by a DOE-approved WSHP. Part 851.11(b)(1) indicates that, “beginning May 25, 2006, no work may be performed at a covered workplace unless an approved worker safety and health program is in place for the workplace.” Possible approaches to addressing this requirement are including a WSHP in the new contract that DOE approves when it awards the contract or including a provision in the new contract that adopts the former contractor’s approved WSHP. Other approaches that meet the 851.11(b)(1) should be acceptable.

3.2.2.5. Program Updates [851.11(c)]

Contractors must submit an update to their program to the head of the DOE field element for approval whenever a significant change or addition to the program is made [851.11(c)]. In determining whether a change is significant and an update is warranted, contractors should consider whether the change is needed to ensure the program accurately reflects actual workplace activities and related hazards and controls and approved major program roles and responsibilities. A change should be submitted to DOE if a hazard associated with a change in the worksite or processes, or any newly recognized hazards, is not effectively controlled by the measures in the currently approved worker safety and health program. Examples may include: 1) a new contractor is awarded a contract; 2) a contractor accepts a new scope for a new toxic, reactive, flammable, or explosive chemical which was not addressed in the approved worker safety and health program; 3) the toxicity or explosive hazard, such as chemical storage, has increased where there is a credible accident scenario that would impact the co-located workers or off-site public; or 4) a site not currently using explosives begins a project

involving explosives. Such changes would be considered “significant” and would require program update and submittal. Changes should not be implemented until approved. The worker safety and health program updates can be embedded in the integrated safety management system program updates as long as the Rule’s update requirements are met.

Contractors must submit annually either an updated worker safety and health program for approval or a letter stating that no changes are necessary in the current program [851.11(c)(2)]. The contractor should submit the updated program or letter in advance of the anniversary of the previous approval so that the head of the DOE field element has sufficient time to approve the submittal by the anniversary of the prior approval.

3.2.2.6. Labor Organizations [851.11(d)]

For contractors whose workers are represented for collective bargaining by a labor organization, 851.11(d) requires contractors to give the labor organizations timely notice of the development and implementation of the worker safety and health program and bargain concerning implementation of the program consistent with federal labor laws. These requirements are not to be confused with the 851.20(a)(4) requirement that contractors provide mechanisms to involve workers and their elected representatives in the development of the worker safety and health program goals, objectives, and performance measures and in the identification and control of hazards in the workplace. These mechanisms must be included in the contractor’s worker safety and health program but the contractor is not required to involve workers and their elected representatives in the development of the mechanisms unless the mechanisms are subject to bargaining concerning implementation of the Rule.

3.2.3. Implementation (851.12)

This section directs contractors to implement the Rule (851.12) and states that nothing in the Rule precludes a contractor from taking any additional protective action that is determined to be necessary to protect the safety and health of workers. This is consistent with 851.10 (a)(1) of the Rule and DOE O 440.1A, Contractor Requirements Document section 1.A. which states *the contractor will...implement a written worker protection program that provides a place of employment free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees.*

3.2.4. Compliance [851.13]

Contractors must achieve compliance with Subpart C of the Rule and their WSHP by no later than May 25, 2007 or may contractually be required to comply before the Rule’s effective date [851.13].

The Rule states that *in the event a contractor has established a written safety and health program, an Integrated Safety Management System (ISMS) description ..., or an approved Work Smart Standards (WSS) ..., the contractor may use that program, description, or process as the worker safety and health program required by this Part if*

the appropriate head of the DOE field element approves such use on the basis of written documentation provided by the contractor that identifies the specific portions of the program, description, or process, including any additional requirements or implementation methods to be added to the existing program, description, or process, that satisfy the requirements of this part and that provide a workplace as safe and healthful as would be provided by the requirements of this Part [851.13(b).

Examples A and B at the end of this Guide provide two different approaches to describing a worker safety and health program that is compliant with the Rule and consistent with the DOE integrated safety management system structure. Table 1 in Example A is one method that can be used to indicate which elements of the ISMS make up the worker safety and health program required by the Rule. Other methods may be acceptable for delineating the ISMS components applicable to, and enforceable under, the Rule.

3.3. Specific Requirements (Subpart C)

3.3.1. Management Responsibilities and Worker Rights and Responsibilities [851.20]

3.3.1.1. Management Responsibilities [851.20(a)]

Contractor management is responsible for the safety and health of its workforce.

3.3.1.1.1. Policy, Goals, and Objectives [851.20(a)(1)]

The Rule requires contractors to establish written policy, goals, and objectives for the worker safety and health program [851.20(a)(1)].

A contractor's worker protection policy is the guiding principle or philosophy that provides overall direction for the organization in regard to worker protection. The written policy statement conveys senior management's commitment and expectations for overall performance. The organization states its commitment to worker protection through a written, clearly communicated policy, which is ultimately its "mission" statement relative to worker protection. The policy places appropriate emphasis on worker protection and should be signed by the highest ranking company official on the site. A concise and clear worker protection policy:

- Creates consistency and continuity in safety and health activities;
- Provides a point of reference when worker protection conflicts with other company goals; and
- Supports supervisors in their enforcement of worker protection rules and safe and healthful work practices.

An example of a worker protection policy might be as follows:

This organization is committed to providing a safe and healthful workplace for employees. These conditions will be ensured through an aggressive and comprehensive worker safety and health program that is integrated with other site worker protection activities and our integrated safety management system. This organization regards employee protection as a priority and is committed to developing, implementing, and improving safety and health practices that will afford optimal protection to employees and enable continuous improvement of the quality of worker protection performance. The safety and health of employees will take precedence whenever conflicts with production or other objectives arise.

An organization's worker protection policy should flow down into specific goals and objectives, which in turn are reflected in the written program. This should include annual goals used to achieve continuous improvement. The goals and objectives should be measurable for use as indicators of performance.

3.3.1.1.2. Qualified Staff [851.20(a)(2)]

The Rule requires contractors to use qualified worker protection staff to direct and manage the worker safety and health program [851.20(a)(2)].

Organizations should seek to hire and retain qualified worker protection professionals needed for the hazards at the site. Examples of these positions are Occupational Safety and Health managers, Safety Engineers, Construction Managers, Industrial Hygienists, Fire Protection Engineers, etc. These individuals may be employed directly, by contract, or as consultants, but they should possess qualifications relative to the particular hazards at the facility. The hiring of certified professionals (e.g., Certified Safety Professionals and Certified Industrial Hygienists) may be appropriate and help to ensure that sufficient numbers of competent staff are in place. Examples of persons that have the specific qualifications to direct and manage worker safety and health programs are available in DOE's *Functional Area Qualification Standards* available at <http://www.eh.doe.gov/techstds/standard/standard.html>. Using a browser's text searching feature to search for "Qualification Standard" will highlight the available functional area qualification standards. Those technical qualification standards are written for DOE personnel that provide oversight of contractor programs, rather than contractor personnel that implement these programs, but are nonetheless a useful resource for determining a person's qualifications in a specific safety and health technical area.

HS-11 will initiate the development of a technical standard on the qualifications for key worker safety and health contractor staff positions at DOE facilities.

3.3.1.1.3. Accountability [851.20(a)(3)]

The Rule requires contractors to assign worker protection responsibilities, evaluate personnel performance, and hold personnel accountable for worker protection performance [851.20(a)(3)].

Managers of sites should clearly communicate roles, responsibilities, and authorities and insist on accountability of workers at all levels. Managers and supervisors should carry

out their own responsibilities and expect employees to follow safe and healthful work practices. Managers and supervisors held accountable for their worker protection responsibilities are more likely to press for solutions to safety and health problems. Managers are typically accountable for the overall worker safety and health program, including planning and allocating resources for their activities. Supervisors are accountable for ensuring that the worker protection plans, programs, and procedures, including hazard identification and abatement activities, are implemented on a day-to-day basis on the front line. Employee accountability involves following procedures, using safe work practices, and reporting hazards.

Holding managers, supervisors, and employees accountable relative to the expectations of their respective positions greatly increases the probability of maintaining safe working conditions. The results of holding people accountable should frequently be communicated and thoroughly documented. The best way to achieve accountability is to include roles, responsibilities, and authorities for worker protection in managers', supervisors', and employees' performance objectives. This can be done by establishing performance goals and objectives for personnel and evaluating the person against those elements periodically. The organization should have a process for measuring each individual's performance, including worker protection performance. These evaluations should be considered in the individual's evaluations, ratings, promotions, and bonuses.

The safety and health program should include a system for ensuring that employees comply with safe and healthful work practices, which includes provisions for recognition of employees for following safe and healthful work practices, training and retraining programs, disciplinary actions, or any other means to ensure employee compliance with safe and healthful work practices.

Top management sets the tone for the work done on site. They should make it known to all employees that worker protection is of vital importance. Moreover, top management commitment to worker protection should be evident in every aspect of site operations. Management can demonstrate their commitment by taking an active role and setting a positive example. They should establish the written worker safety and health program, ensure that it integrates implementation of all provisions of the Rule, and fully support the program. They can also demonstrate commitment through such activities as:

- Walking their spaces with workers, supervisors, and worker protection professionals;
- Becoming actively involved in worker protection committees; and
- Encouraging excellence through recognition programs such as DOE's Voluntary Protection Program for contractors.

The commitment to ensure that all employees understand that the organization regards worker protection as a primary objective is fundamental. Management commitment to worker protection should be evident to the employee and reinforced by genuine efforts to maintain excellence in worker protection.

3.3.1.1.4. Employee involvement [851.20(a)(4)]

The Rule requires the contractor to provide mechanisms to involve workers and their elected representatives in the development of the worker safety and health program goals, objectives, and performance measures and in the identification and control of hazards in the workplace [851.20(a)(4)]. This requirement is not to be confused with the 851.11(d) requirement to give labor organizations timely notice of the development and implementation of the worker safety and health program and bargain concerning implementation of the program consistent with federal labor laws. The mechanisms must be included in the contractor's worker safety and health program but the contractor is not required to involve workers and their elected representatives in the development of the mechanisms unless the mechanisms are subject to bargaining concerning implementation of the Rule. Employee involvement is an element of many DOE sites' integrated safety management system and is included in the example worker safety and health programs provided in Examples A and B to this Guide.

Employees play a vital role in implementing an aggressive and effective worker safety and health program. Employees are involved in all site operations, have intimate knowledge of potential worker protection hazards, and can contribute as valuable problem solvers. Active and meaningful employee involvement in the worker safety and health program means the workforce is trained to recognize hazards and is involved in correcting them. An indicator of effective employee involvement is enthusiastic employees who understand their role in the program and who are interested in its success.

Contractor line organizations should assign and communicate worker protection responsibilities to workers, provide adequate authority and resources to permit them to meet these responsibilities, and hold them accountable for proper performance. Line management should also develop and implement programs to encourage and promote employee involvement and commitment to the worker safety and health program. Contractors should also establish forums for employees to gain an appreciation for the worker safety and health program and to foster communication between management and affected workers.

Examples of acceptable and effective mechanisms for employee involvement in safety and health program implementation include, but are not limited to, the following:

- Participation on committees and work teams;
- Participation in worksite inspections, hazard analysis (especially job hazard analyses (JHAs); see paragraph 3.3.2.1.6 of this Guide), and design control;
- Development and review of workplace operating procedures;
- Assistance in training;
- Conduct of worker protection meetings; and

- Participation in accident investigations.

Committees. An important component of employee involvement for a worker safety and health program is the establishment of one or more worker protection committees that bring people together in a cooperative effort to promote safety and health at the worksite. Such committees can be used to promote employee involvement in the development of program goals, objectives, and performance measures and in the identification and correction of workplace hazards. Many types of committees exist that address worker protection issues, and no one committee organization fits all occasions and activities. Worker protection functions may be included in the charters of different committees. The charter, decisions, and actions of a worker protection committee should be developed by the committee through negotiations and voting and approved by management. Each worker protection committee should consist of employees and management representatives. In order to assure worker participation, committees should consider having a large proportion of non-managerial members. Note that the organization of any such committee must be consistent with acceptable practices for labor-management relations. The responsibilities of each worker protection committee should be clearly stated in a written charter, and each committee should have clear and specific performance-based goals. These goals should be consistent with the goals and objectives of the worker safety and health program and be responsive to the culture and operations in the worksite. The goals should also be revised as necessary to accommodate changes in operations, technology, and materials and to reflect tasks completed by the committee.

Worker protection committees should have access to necessary records (subject to provisions of the Privacy Act), work areas, and personnel to investigate any worker protection concern. Committees should also have access to the training, resources, and technical expertise that will allow them to function effectively.

Participation in worksite inspections, hazard analyses, and design control. Employees should be encouraged to perform informal worksite inspections as part of their daily work activities. This includes daily worksite walk-throughs by workers and their supervisors.

For work site inspections to be effective, employees should:

- Be trained in hazard recognition, analysis, and control;
- Have reasonable access to worker protection professionals;
- Have access to reference sources (e.g., all applicable worker protection requirements documents, guides, and technical standards);
- Be able to suggest abatement methods; and
- Be able to track corrective actions.

Instructors. Qualified employees make excellent instructors for new employees. Having employees as instructors also enhances worker protection awareness because instructors

must keep up with requirements to be effective. Employee presentations at meetings are an excellent way for employees to share their experiences and lessons learned.

Accident and incident investigations. Including employees in accident and incident investigations is a worthwhile investment for managers. Worksite employees often can provide valuable insight on actual workplace procedures that could have contributed to an accident and on the effectiveness and practicality of proposed corrective actions. In addition, involvement in accident investigations can increase an employee's awareness of how workplace hazards can lead to accidents and incidents and, thus, how employees can better protect themselves. One way to involve employees in accident investigations is to establish special-function committees with a specific scope of responsibility and to rotate employee membership on the committee periodically. Selected employees should be trained in accident and incident investigations, be used in the investigations, and be recognized for their contributions.

Other avenues for employee involvement. Employee participation activities should ensure employee involvement in the development, review, and revision of worker protection related documents and activities, including:

- Performance measures for the worker safety and health program;
- Annual goals and objectives;
- Job safety analyses;
- Operating procedures;
- Site inspections and exposure assessments;
- Analyses of facilities, processes, materials, and equipment;
- Variance requests and hazard abatement plans, along with the development of equivalent, interim, or protective measures for variance requests or abatement plans; and
- Participation in the development of worker protection, guides, standards, and procedures (consistent with labor-management agreements).

3.3.1.1.5. Access to Information [851.20(a)(5)]

The Rule requires contractors to provide workers with access to information relevant to the worker safety and health program. [851.20(a)(5)]. This information is essential for the success of mechanisms to encourage employee involvement required by 851.20(a)(4) and the exercise of workers' rights required by 851.20(b)(2).

3.3.1.1.6. Report Events and Hazards [851.20(a)(6)]

The Rule requires contractors to establish procedures for workers to report, without reprisal, job-related fatalities, injuries, illnesses, incidents, and hazards and make recommendations about appropriate ways to control those hazards [851.20(a)(6)].

3.3.1.1.7. Prompt Response to Reports [851.20(a)(7)]

The Rule requires contractors to provide for prompt response to the reports and recommendations made by workers under 851.20(a)(7).

The term “prompt” is a subjective term the meaning of which depends on the specific context in which the term is used. The meaning of this term in a situation should be determined by DOE line management starting with the head of the DOE field element and progressing to the Under Secretary depending on the impact of the meaning. DOE line managers should obtain input from safety and health professionals and other relevant subject matter experts in making their determinations.

3.3.1.1.8. Regular Communications [851.20(a)(8)]

The Rule requires contractors to provide for regular communication with workers about workplace safety and health matters [851.20(a)(8)]. The contractor should include a system for communicating with employees about matters relating to worker protection, including provisions designed to encourage employees to inform the employer of hazards at the worksite without reprisal. Many of the suggestions in paragraph 3.3.1.1.4 of this Guide are excellent vehicles for regular communications between workers and management on workplace safety and health matters.

3.3.1.1.9. Stop work Authority [851.20(a)(9)]

The Rule requires contractors to establish procedures to permit workers to stop work or decline to perform an assigned task because of a reasonable belief that the task poses an imminent risk of death, serious physical harm, or other serious hazard to the workers, in circumstances where the worker believes there is insufficient time to utilize normal hazard reporting and abatement procedures [851.20(a)(9)].

3.3.1.1.10. Inform Workers of Rights [851.20(a)(10)]

The Rule requires contractors to inform workers of their rights and responsibilities by appropriate means, including posting the DOE-designed Worker Protection Poster in the workplace where it is accessible to all workers [851.20(a)(10)]. Training (paragraph 3.3.6 of this Guide) is another vehicle for informing workers of their rights and responsibilities.

DOE contractors are expected to post the DOE Worker Protection Poster [10 CFR 851.20(b)(2)(iv)] in a sufficient number of places to permit workers the opportunity to observe the information en route to or from their work place. The poster is available at <http://www.eh.doe.gov/health/rule851/851final.html>. In addition to the poster, contractors should take other actions to provide relevant information to workers.

Other worker protection posting requirements may be applicable to special situations in specific workplaces. For example, OSHA's confined space standard requires employers to post danger signs or use other equally effective means to inform exposed employees of the existence and location of, and the danger posed by, the confined space.

3.3.1.1.11. Additional Resources.

OSHA's *Safety and Health Program Management Guidelines*. (FR 54: 3904-3916; 1/26/1989,
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=FEDERAL_REGIS TER&p_id=12909)

3.3.1.2. Worker Rights and Responsibilities [851.20(b)]

The Rule requires workers to comply with the safety and health standards and directives in the Rule that are applicable to their own actions and conduct [851.20(b)]. It encourages workers to be active participants in their workplace safety and health activities.

Workers should also actively take advantage of the worker rights established under the Rule in 851.20(b) in a responsible manner. The Rule provides workers with the rights, without reprisal, described below. Workers should be free of any form of job discrimination because of exercising these rights.

3.3.1.2.1. Participate on Official Time [851.20(b)(1)]

Workers have the right to participate in activities described in the Rule on official time.

3.3.1.2.2. Access to Information [851.20(b)(2)]

The Rule provides workers with the right to have access to—

- DOE safety and health publications [851.20(b)(2)(i)];
- The worker safety and health program for the covered workplace [851.20(b)(2)(ii)];
- The standards, controls, and procedures applicable to the covered workplace [851.20(b)(2)(iii)]. This includes a worker's right to request information about safety and health hazards in the workplace, precautions that may be taken, and procedures to be followed if the worker is involved in an accident or is exposed to toxic substances;
- The safety and health poster that informs the worker of relevant rights and responsibilities [851.20(b)(2)(iv)]. As noted in paragraph 3.3.1.1.10 of this Guide, workers have rights to access additional posted information in special situations in specific workplaces.;

- Limited information on any recordkeeping log (OSHA Form 300). Access is subject to Freedom of Information Act requirements and restrictions [851.20(b)(2)(v)]; and
- The DOE Form 5484.3 (the DOE equivalent to OSHA Form 301) that contains the employee's name as the injured or ill worker [851.20(b)(2)(vi)].

3.3.1.2.3. Notification of Monitoring Results [851.20(b)(3)]

A worker must be notified when monitoring results indicate the worker was overexposed to hazardous materials [851.20(b)(3)]. Many of the OSHA substance-specific health standards in 29 CFR 1910, Subpart Z – Toxic and Hazardous Substances (mandated under 851.23(a)), also specifically require that this notification include all workers for whom the results are representative (e.g., 29 CFR Sub-parts 1910.1018, 1910.1025, 1910.1044, 1910.1045 and 1910.95). Where not specifically required, however, contractors should still ensure that all workers covered under representative monitoring are notified when monitoring results indicate that they may have been overexposed to hazards. Furthermore, contractors should also notify workers of results of monitoring for hazardous materials even if no overexposure was detected. In this way, workers are informed and fully aware of ongoing workplace conditions and can observe trends in exposure monitoring results.

Unless otherwise specified in a standard under 851.23(a), notification of monitoring results should include the following:

- Notification to the affected workers of the results, in writing, within 10 working days after receipt of the results;
- Notification should be made personally to the affected worker or posted in a location that is readily accessible to the affected worker, but in a manner that does not identify the individual to other workers; and
- A description and explanation of the results with and without any respiratory protection that the worker used during the monitoring.

If the monitoring results indicate that a worker's exposure was at or above an occupational exposure limit (or action level for those hazardous materials with action levels), the contractor should:

- Include in the notice a statement that the occupational exposure limit or action level has been met or exceeded;
- Include in the notice a description of the corrective action being taken by the contractor to reduce the worker's exposure;
- Notify DOE and the medical services provider of these results; and

- Report exposures that exceed an occupational exposure limit in a manner consistent with DOE O 231.1A *Environment, Safety and Health Reporting* using procedures in DOE M 231.1-1A *Environment, Safety and Health Reporting Manual*. Both are available by searching at <http://www.directives.doe.gov/>.

3.3.1.2.4. Observe Monitoring. [851.20(b)(4)]

Workers have the right to observe monitoring or measuring of hazardous agents and have the results of their own exposure monitoring. This usually involves allowing an affected worker or authorized representative of workers to observe the actual monitoring and providing copies of the individual results in person or by some form of personal mail to the specific workers that were monitored. Contractors should consider making available to affected workers as a group the results of monitoring without identifying the specific workers monitored. This practice protects individuals' privacy and helps to motivate the work group to minimize exposures.

3.3.1.2.5. Accompany Inspections [851.20(b)(5)]

The Rule provides that a representative authorized by employees may accompany the Director (*DOE official to whom the Secretary assigns the authority to investigate the nature and extent of compliance with the Rule* [851.3]) or his authorized personnel during the physical inspection of the workplace to aid in the inspection. When no authorized employee representative is available, the Director or his authorized representative must consult, as appropriate, with employees on matters of worker safety and health [851.20(b)(5)].

One or more employee representatives should be provided the opportunity to participate in briefings and in the walk-around phase of DOE-conducted enforcement inspections. Note that employee participation also may have to be consistent with binding labor-management agreements that are outside the scope of the Rule. As noted in paragraph 3.3.1.2 of this Guide, DOE expects that workers will exercise these rights in a responsible manner.

3.3.1.2.6. Results of Inspections and Investigations [851.20(b)(6)]

Workers have the right to request and receive results of inspections and accident investigations [851.20(b)(6)]. In areas where noncompliance with a DOE-prescribed worker protection requirement is identified during an enforcement inspection, information about the noncompliance must be conveyed to worksite employees. This can be achieved in a number of ways but at a minimum, must include posting of the notice of violation in such areas until the noncompliance is corrected [851.42(e)].

3.3.1.2.7. Express Concerns [851.20(b)(7)]

Workers have the right to express concerns related to worker safety and health without reprisal [851.20(b)(7)].

In addition to relying on enforcement of the Rule, workers that believe they are being denied the rights provided by 851.20(b) or are being subjected to reprisals for attempting

to exercise those rights, may file an employee concern using DOE O 442.1A *Department of Energy Employee Concerns Program*. (See also 10 CFR Part 708, DOE contractor Employee Protection Plan, for protection of contractor employees from retaliation for disclosure of information concerning danger to public or worker health and safety, among other things). That program requires that employees be encouraged to seek to resolve concerns with their first-line supervisors or use established concern or complaint resolution systems at the site. If these systems are unknown or unavailable, or have not dealt, or cannot deal effectively with a concern, employee concerns program personnel (first local, then Headquarters) can assist concerned employees in determining which processes could be used to evaluate and resolve their concerns. More information is available in G 442.1-1 *Department of Energy Employee Concerns Program Guide* and at <http://your.energy.gov/genempcon.html>.

3.3.1.2.8. Decline to Perform in Imminent Risk [851.20(b)(8)]

Workers have the right to refuse to perform an assigned task when faced with a reasonable belief that, under the circumstances, the task poses an imminent risk of death or serious physical harm coupled with a reasonable belief that there is insufficient time to use normal procedures to report and abate the hazard [851.20(b)(8)].

3.3.1.2.9. Stop Work [851.20(b)(9)]

Workers may stop work when they discover employee exposures to imminently dangerous conditions or other serious hazards provided that the stop work is exercised in a justifiable and responsible manner consistent with procedures in the safety and health program [851.20(b)(9)].

Any stop work authority should be exercised in a justifiable and responsible manner. All workers, supervisors, managers, and OSH professionals are responsible for being cognizant of the conditions in their workplaces and for being prepared to stop work when these conditions pose an imminent danger of death or serious physical harm. When a “reasonable person” views the circumstances as imminent danger of death or serious physical harm, a stop work order should be issued. The term “reasonable person” is a subjective term the meaning of which depends on the specific context in which the term is used.

Whenever workers see a need for a stop work order, they should request one from their supervisors. Before a stop work order is issued, the person issuing it should ensure that the work stoppage itself would not negatively impact the safety and health of workers. Contractors should have procedures in place that address stop work authority, and workers should be trained to those procedures.

3.3.1.2.10. Additional Resources

OSHA standards that address informing workers of hazards include, among others, Hazard Communication (29 CFR 1910.1200), Hazardous Waste Operations and Emergency Response (29 CFR 1910.120), Permit-required Confined Spaces

(29 CFR 1910.146), Blood-borne Pathogens (29 CFR 1910.1030), and the specific Toxic and Hazardous Substance regulations in 29 CFR 1910, Subpart Z.

Title 10 CFR 708 describes how contractor employee representatives are protected from acts of discharge, discipline, or other acts of retaliation that result from disclosure of information concerning danger to the public or worker health and safety; refusal to participate in dangerous activities and other specified protected activities.

http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=c2a77424cbb1eea7b3975cf922084d7a&tpl=/ecfrbrowse/Title10/10cfr708_main_02.tpl

Another guidance document is OSHA's *Safety and Health Program Management Guidelines*,

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=FEDERAL_REGIS TER&p_id=12909

3.3.2. Hazard Identification and Assessment [851.21]

3.3.2.1. Identify and Assess Risks [851.21(a)]

The Rule requires DOE contractors establish procedures to identify existing and potential workplace hazards and assess the risk of associated worker injury or illness [851.21(a)].

3.3.2.1.1. Assess Workers Exposures [851.21(a)(1)]

The Rule requires assessment of worker exposure to chemical, physical, biological, and safety workplace hazards through appropriate monitoring [851.21(a)(1)]. For health hazard exposures, this assessment should entail appropriate:

- Workplace monitoring (including personal, area, wipe, and bulk sampling; and measuring non-ionizing radiation, noise, vibration, heat and cold extremes, and ergonomic stressors);
- Biological monitoring;
- Observation; and
- Projections of potential exposures based on modeling or product and industry literature searches.

Guidance on appropriate workplace monitoring strategies is provided in:

- DOE G 440.1-3, Occupational Exposure Assessment, (<http://www.directives.doe.gov/cgi-bin/explcgi?4??+%3Cin%3E+series;maxdocs=300;APP=onixdoe;collection=neword,newguide,newmanual,newpolicy,newnotice;UP=current.html;INTERFACE=1WINDOW>), and

- Mulhausen, JR and Damiano, J, A Strategy for Assessing and Managing Occupational Exposures, Second Edition, AIHA Press, Fairfax, VA, 1998. (Available at <http://www.aiha.org/webapps/commerce/product.aspx?id=AEAK06-327&cat=Books&subcat=>)

Guidance on workplace monitoring methods is provided in:

- National Institute for Occupational Safety and Health, NIOSH Manual of Analytical Methods (NMAM), <http://www.cdc.gov/niosh/nmam/>, and
- *OSHA Technical Manual*, TED 01-00-015 [TED 1-0.15A], http://www.osha.gov/dts/osta/otm/otm_toc.html

For exposure to safety hazards, see paragraph 3.3.2.1.5 of this Guide.

3.3.2.1.2. Document Hazard Assessment [851.21(a)(2)]

Contractors are required to document assessments for chemical, physical, biological, and safety hazards using recognized exposure assessment and testing methods and accredited and certified laboratories [851.21(a)(2)].

Many DOE guides and technical standards provide specific guidance on the hazard assessment information that should be documented for their respective subject areas. For examples, DOE-STD-6005-01 *Industrial Hygiene Practices*, section 5.4 *Exposure Assessment Documentation* provides detailed guidance on the information that should be documented for health hazard exposure assessments.

Hazard assessments, the outcome of which determined that the risks were negligible, should also be documented using a graded approach, e.g., a contractor may determine that it is unnecessary to document results of frequent, informal walk-throughs of workspace where no hazards were identified.

3.3.2.1.3. Record Results [851.21(a)(3)]

The contractor must record observations, testing and monitoring results [851.21(a)(3)].

Samples should be analyzed by a laboratory that is a successful participant in American Industrial Hygiene Association accreditation or proficiency testing programs, or equivalent laboratory quality assurance programs, for the hazards of concern. DOE's beryllium rule at 10 CFR 850.24(f) requires samples used for purposes of that rule be analyzed by a laboratory accredited by the American Industrial Hygiene Association (AIHA) or one that demonstrates equivalent quality assurance. One example of an equivalent laboratory quality assurance program is the International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 17025:2005 *General requirements for the competence of testing and calibration laboratories*. Other equivalent laboratory quality assurance programs also should be acceptable. Formats for accrediting or certifying the quality of analytic results can be different for results

obtained in the field rather than in a fixed laboratory as long as fundamental analytic quality assurance principles are observed. The head of the DOE field element determines the acceptability of analytic quality assurance programs.

Monitoring results should be recorded with documentation that describes the tasks and locations where monitoring occurred and identifies:

- Workers monitored or represented by the monitoring;
- Sampling methods and durations;
- Control measures in place during monitoring (including use of personal protective equipment);
- Job task and location; and
- Any other factors that may have affected sampling results.

The results of evaluations of workplace exposures and controls and the results of medical surveillance and epidemiology studies provide management with essential feedback for improvement. Management uses this information to upgrade current workplace controls and select controls for future operations. Additionally, this information is used to monitor the workforce for signs or symptoms of occupational disease, to prevent future disease cases, and to base workers' compensation decisions.

Quality assurance records for exposure assessment activities should be maintained and retrievable for the monitoring equipment and analytic methods used.

Records including hazard assessment and analysis documents, survey results, essential information gained through interviews, or whatever data is important to characterize the process and workplace safety and health hazards should be recorded, maintained, and retrievable in accordance with the contractor's Quality Assurance Program Plan consistent with DOE O 414.1 *Quality Assurance*.

3.3.2.1.4. Analyze Designs for Potential Hazards [851.21(a)(4)]

The contractor must analyze designs of new facilities and modifications for potential workplace hazards [851.21(a)(4)]. Incorporating worker protection features and requirements in the design and construction of facilities and equipment is the most cost-effective way to control hazards. Design reviews should include input from a team of engineers, operations managers and employees, and appropriate worker protection professionals. This should be initiated at the earliest design phase and continue throughout the design process to ensure that potential hazards are identified, evaluated, and, to the extent feasible, eliminated or controlled through design features. The formality of the design review for worker safety and health should be tailored to the scope and complexity of the project. DOE O 413.3A *Program and Project Management for the Acquisition of Capital Assets* provides a formal process that should be followed for significant projects as described directly below. Less formal processes that

nonetheless follow the same basic principles are discussed following the discussion of DOE O 413.3A.

Guidance for formal analysis of designs for potential workplace hazards is available in DOE O 413.3A *Program and Project Management for the Acquisition of Capital Assets*. DOE O 413.3A is not a regulatory requirement but it directs DOE officials to include it in DOE contracts that contain the Contractor Requirements Document in contracts making contractors responsible for project execution at DOE-owned or -leased facilities. This Order provides project management direction requirements for the acquisition of capital assets projects having a total project cost or environmental management total project cost for clean-up projects greater than or equal to \$20 million for all capital asset, sets forth principles that apply to all projects with a total project cost or environmental management total project cost greater than or equal to \$5 million, and sets forth project assessment and reporting system reporting requirements that apply to all projects with a total project cost or environmental management total project cost greater than or equal to \$5 million. It contains specific design analysis and review principles, procedures, and approval authorities that are appropriate for large scale projects.

Worker protection professionals should be assigned to review and provide input in all four phases of project design: conceptual design, preliminary design, final design, and inspection. Review during the conceptual design phase, the earliest phase of the project, is critical. Hazard analysis methodologies can be applied to facilities, processes, equipment, and operations (including decontamination and decommissioning (D&D)) throughout their life cycle. Methodologies include:

- Preliminary hazard analysis (PHA);
- Health hazard analysis;
- Facility hazard analysis;
- Process hazard analysis; and
- Safety review.

Preliminary hazard analysis has a specific meaning in DOE O 413.3A and DOE-STD-1189-2006 (under development) which provides implementation guidance for nuclear facilities safety requirements for facilities rated at certain hazard categories. Preliminary hazard analysis also has a more general meaning when used for non-nuclear worker safety and health hazard analysis. The various uses of this term all follow the same basic principles and are therefore compatible. Preliminary hazard analyses (PHA) provide a broad hazard screening tool that includes a review of the types of operations that will be performed in the proposed facility and identifies the hazards associated with these types of operations and facilities. The results of the PHA are used to determine the need for additional, more detailed analysis, serve as a precursor documenting that further analysis is deemed necessary, and serve as a baseline hazard analysis where further analysis is not indicated. The PHA is most applicable in the conceptual design stage, but it is also useful

for existing facilities and equipment that have not had an adequate baseline hazard analysis. PHAs are detailed studies to identify and analyze potential hazards associated with each aspect of the facility and related equipment and operations. The analysis should include a systematic review of each facility component and task and should consider:

- Facility design characteristics such as electrical installations, platform heights, egress concerns, etc.;
- Proposed equipment including types of equipment, location of equipment relative to the other operations and workers, required equipment interfaces, etc.;
- Proposed operations including related hazardous substances and potential exposures, potential energy sources, locations of operations and required interfaces, resulting material and personnel traffic patterns, etc.; and
- Facility and equipment maintenance requirements including confined space concerns, electrical hazards, and inadvertent equipment startup or operations hazards.

PHAs may identify the need for other more specialized hazard analyses such as exposure hazard analyses (see Mulhausen, JR and Damiano, J, *A Strategy for Assessing and Managing Occupational Exposures*, Second Edition, AIHA Press, Fairfax, VA, 1998, available at <http://www.aiha.org/webapps/commerce/product.aspx?id=AEAK06-327&cat=Books&subcat=> and process hazard analyses (see 29 CFR 1910.119).

The following techniques are available to assist in the performance of a general type (rather than the formal type referred to in DOE O 413.3A) of PHA:

Safety review is a technique to provide a detailed evaluation of facility operations or processes. It is used to identify hazards associated with conditions, practices, maintenance, and other pertinent aspects of the facility or process.

Change analysis is performed to ensure that proposed design or operational changes do not adversely affect the safety of the facility. The analysis identifies differences between the existing and the proposed design or operational change, identifies how the change will affect related features, and evaluates the effects of the differences and relationships on the overall safety of the facility. Change analysis can be used during the design, modification, construction, or renovation phase of the facility to address proposed changes.

Energy trace and barrier analysis (ETBA) identifies potential energy sources, traces those sources to a potential hazard, and determines if the proper barriers to the hazard (i.e., controls) are in place. The ETBA provides an effective tool to identify potential hazards for the PHA.

Failure modes and effects analysis (FMEA) is a critical review of the system (facility and operations), coupled with a systematic examination of all conceivable failures and an evaluation of the effects of these failures on the mission capability of the system. The FMEA can help avoid costly facility modifications and should be initiated early in the design phase. Once performed, the FMEA provides valuable information if updated throughout the design process.

Fault tree analysis (FTA) is a logic tree used to evaluate a specific undesired event. The FTA is developed through deductive logic from an undesired event to all sub-events that must occur to cause the undesired event. The FTA can be applied at any point in the life of a facility. The FTA can be used to support the PHA during facility design.

3.3.2.1.5. Evaluate Operations, Procedures, and Facilities [851.21(a)(5)]

The contractor is required to evaluate operations, procedures, and facilities to identify hazards [851.21(a)(5)].

Ongoing hazard identification is accomplished most effectively by workers and their supervisors during the course of daily activities, with technical assistance from worker protection professionals and functional area technical experts, as necessary.

Daily workplace evaluations by workers and supervisors include such things as inspections of tools and equipment, ranging from inspection of manual tools and power tools, forklifts, cranes, slings, and warning systems to inspection of respiratory protective equipment and other personal protective equipment prior to and during use. In addition, workplace conditions, housekeeping, utilization of assigned personal protective equipment, and conformance with procedures, work permits, health and safety plans, and other established criteria should be evaluated. Workers and supervisors should consult with worker protection professionals as necessary to address questions regarding regulatory requirements and compliance or where specific technical expertise is needed.

In addition, daily worker and supervisor evaluations should be supplemented by worker protection professional evaluations of the workplace. These routine evaluations should include both informal unscheduled walk-through evaluations conducted during worksite visits and formal, scheduled periodic workplace evaluations.

An initial hazard evaluation should be conducted to identify hazards and establish a baseline for future evaluations. The initial evaluation could consist of a comprehensive “wall-to-wall” evaluation, a compilation of results of evaluations that pre-date the Rule and are still valid, or a combination of both. Regularly scheduled evaluations should be conducted at all workplaces, including permanently housed construction workplaces, using a graded approach to set the frequency. For example, office buildings and other low hazard workplaces may be evaluated every three years; shops, laboratories, and warehouses every two years, and high hazard workplaces annually. Fire safety inspections should be conducted on a frequency agreed to by the fire protection Authority Having Jurisdiction (AHJ). (See paragraph 3.3.4.1 of this Guide for more information about AHJ). Evaluations should then be conducted as often as necessary to ensure

compliance with the Rule (851.21(c), see 3.3.2.3 in this Guide). The evaluations are conducted to identify and document existing and potentially hazardous work conditions and practices that do not comply with worker protection requirements or may otherwise pose hazards to the safety or health of workers. Evaluations should be performed by worker protection professionals with the participation of affected employees and supervisors.

An effective approach to accomplishing such an evaluation is to use a team comprised of affected employees and supervisors, as well as the worker protection professionals necessary to evaluate specific workplace hazards. Worker protection professionals required on the team may include:

- Safety professionals;
- Industrial hygienists;
- Occupational medical professionals;
- Workers and supervisors; and
- Other worker protection professionals, as appropriate for the nature of the workplace and the hazards associated with the activities.

Alternatively, the team could include safety and health professionals that are cross-trained in the disciplines applicable to the workplace being evaluated. These cross-trained professionals would consult with functional area experts as needed.

The evaluation team should use worker protection hazard abatement information, information from the employee concerns program, results of baseline and previous inspections, and injury and illness data, among others, as tools for determining their strategy for such evaluations.

Other formal methods for the evaluation of specific types of hazards in the work place are available such as the fire hazards analyses and facility related fire safety assessments found in DOE G 440.1-5 (also referred to as G 420.1/B-0 and DOE G 440.1/E-0), *Implementation Guide for use with DOE O 420.1 and DOE O 440.1 Fire Safety Program* (under revision as DOE G 420.1-3). Detailed information on the selection and use of various hazard analysis methodologies and techniques for chemical hazards is available in the American Institute of Chemical Engineers' *Guidelines for Hazard Evaluation Procedures*, second edition, 1992, <http://www.aiche.org/apps/pubcat/seadtl.asp?ACT=S&Title=ON&srchText=Guidelines+for+Hazard+Evaluation+Procedures>.

3.3.2.1.6. Job Activity-Level Hazard Analysis [851.21(a)(6)]

Contractors must perform routine job activity-level hazard analyses [851.21(a)(6)]. Operations and procedures at the activity level should be analyzed and reviewed to identify potential worker protection hazards and deficiencies. A job hazard analysis

(JHA), AKA a job safety analysis (JSA), is the most basic and widely used tool to identify hazards associated with jobs at the activity level. JHAs can satisfy a large portion of the worker protection hazard identification requirements at most workplaces. A JSA is useful for dynamic work environments like equipment repair as well as relatively stable environments such as operating a chemical process.

JHAs should be conducted:

- For existing operations and procedures that have not been adequately evaluated in the past or when there is no current hazard analysis available;
- In response to employee identified potential hazards; and
- For existing operations and procedures that have resulted in injuries, illnesses, or near misses.

JHAs should be updated periodically to ensure that any new hazards that have been introduced since the last evaluation of the activity are addressed.

The principle elements of a job safety analysis are:

- Selection of operations and procedures to be analyzed;
- Breakdown of operations and procedures to their component tasks;
- Identification of hazards associated with each task and the controls necessary to protect workers against those hazards;
- Identification and addressing of potential hazards to bystanders and identification of related controls; and
- Development of procedures incorporating identified controls.

Affected employees and supervisors should participate in the JHA process. Their knowledge of the tasks and associated hazards, and familiarity with the procedures actually used in performing the work, provides information that is more complete during the JHA. In addition, these front-line personnel can assist in determining the feasibility and effectiveness of proposed control measures.

Detailed information on the conduct of JHAs is presented in U.S. Department of Labor, Occupational Safety and Health Administration, OSHA Publication 3071, *Job Hazard Analysis*, available at <http://www.osha.gov/Publications/osha3071.html>, and the DOE NNSA document *Activity Level Work Planning and Control Processes -Attributes, Best Practices, and Guidance for Effective Incorporation of Integrated Safety Management and Quality Assurance* (link on web site <http://www.doeism.org/>). The NNSA document addresses activities at all levels of hazard and is particularly useful for work that is not well defined, is unique, or is extremely complex and should be approached carefully and

meticulously to identify and control recognized hazards and plan for a wide range of contingencies that could have significant consequences. This document also describes appropriate use of ISM core functions and guiding principles as well as use of a graded approach to activity-level work planning based on the nature of the hazard.

3.3.2.1.7. Review Safety and Health Experience [851.21(a)(7)]

The Rule requires the review of site safety and health experience information [851.21(a)(7)]. Reporting and investigating accidents, injuries, and illnesses and analysis of related data for trends and lessons learned are key components of this review.

The collection of detailed, accurate data and information regarding workplace accidents, injuries, and illnesses and the subsequent analysis of the data and information are useful in identifying worker protection problem areas. This type of analysis or trending is used to identify the prevalent types of accidents, injuries, and illnesses and their sources and causes. Information derived from trend analysis can be used to focus worker protection efforts on the actual sources of injuries and illnesses and to help prioritize hazard abatement activities. Necessary components of accident, injury, and illness data collection and analysis include:

- A procedure to investigate, find root causes, and report occupational injuries and illnesses (e.g., procedures in (DOE O 225.1A, *Accident Investigations*, available by searching at <http://www.directives.doe.gov/>);
- Systems and methods to collect, record, compile, and manage accident, injury, and illness data and information (e.g., procedures in DOE M 231.1-1A, *Environment, Safety and Health Reporting Manual* available by searching at <http://www.directives.doe.gov/>); including but not limited to, the OSHA 300 log of occupational injuries and illnesses, workers' compensation data, accident reports, incident reports, industrial hygiene exposure monitoring results, inspection reports and corrective action tracking system entries;
- Methodologies to analyze data and information to identify and trend accidents, injuries, and illnesses by type and source; and
- A formalized approach to analyze identified trends, to determine root causes, and to develop appropriate control measures.

3.3.2.1.8. Workplace Hazards and Radiological Hazards [851.21(a)(8)]

Contractors must consider interaction between workplace hazards (e.g., chemical, physical, biological, or safety hazards) and other hazards such as radiological hazards.

Personnel responsible for implementing worker protection and radiation protection requirements should coordinate in instances where the requirements overlap or appear to conflict. The two sets of requirements should be integrated and applied in a manner that prevents undesirable results and provides reasonable assurance of adequate worker protection. For example, control measures to minimize personnel radiation exposure

should be reviewed to ensure that the workers are not subjected to life-threatening asphyxiation or fire hazards. Both sets of requirements must be met. Complying with the more protective requirement usually also results in compliance with the less protective requirement if the requirements provide for different levels of protection.

3.3.2.2. Closure Facilities Hazard Identification [851.21(b)]

Contractors must submit to the head of the DOE field element a list of closure facility hazards and controls within 90 days of identifying those hazards [851.21(b)]. The head of the DOE field element, with concurrence of the CSO, has 90 days to accept the controls or direct additional actions to achieve technical compliance or provide additional controls. This provision [851.21(b)] provides contractors flexibility in addressing hazards in facilities that are or will be permanently closed, demolished or subject to title transfer consistent with the provisions of 42 U.S.C. § 2282c (a)(3). In such facilities, contractors must submit a list and the established controls for facility hazards that would require costly and extensive structural/engineering modifications to be compliant within 90 days after identifying such hazards. For these hazards, contractors have the flexibility to propose appropriate abatement actions (subject to DOE approval) based on the special circumstances associated with the facilities.

Contractors should include their request for approval of the closure facilities that they have already identified as part of the worker safety and health program that must be submitted to the DOE for approval by February 26, 2007. That provides the head of the DOE field element the prescribed 90 days to act upon the request by the Rule's May 25, 2007 implementation date at which time all work at a covered workplace must be performed under an approved worker safety and health program. Closure facility hazards that are identified too late to be included in the first proposed worker safety and health program should be submitted for approval within 90 days of identification of those hazards.

Closure facility hazards should be submitted per 851.21(b) when the hazards discovered are beyond the range of hazards for which controls have previously been identified and utilized with success. Identified closure facility hazards do not require submittal if those hazards will be eliminated or title to the facility will be transferred prior to 90 days from identification.

Closed hazardous waste burial sites are not included in the definition of closure facilities.

3.3.2.3. Hazard Identification Baseline and Schedule [851.21(c)]

Contractors must perform the hazard identification tasks required by 851.21(a) initially to obtain a baseline and then as often as necessary to ensure compliance with the Rule [851.21(c)]. The baseline information is the information that is obtained by implementing 851.21(a) and (c). The frequency of obtaining the hazard information, including the schedule for the first time an activity or facility is assessed, should be established using a graded approach that reflects the potential degree of hazard, includes consideration of the

uncertainties surrounding the hazard assessments, and supports a continual improvement process for minimizing hazards.

Initial baseline information is the compilation of information gathered for the first time to meet the requirements of 851.21(a). The scope and level of detail of the information generated should be commensurate with the hazards and risk to workers. This information could come from a variety of assessment activities such as those discussed above in paragraph 3.3.2.1 of this Guide. As suggested in paragraph 3.3.2.1.5 above, the initial evaluation could consist of a comprehensive “wall-to-wall” evaluation, a compilation of results of evaluations that pre-date the Rule and are still valid, or a combination of both. The objective is to obtain hazard information that is sufficient to determine the controls that are commensurate with the hazards. The baseline evaluation [851.21(c)] of an operation or facility documents all the information needed to assess the health and safety risk that its hazards pose to involved and adjacent workers. The evaluation should contain sufficient detail to determine whether current worker protection standards are being met and provide management the information needed to prioritize and estimate the cost of correcting deficiencies. Additionally, the evaluation’s description of current conditions (along with accident, injury and illness information) could be useful for providing effective feedback for improvement and establishing conditions that existed when workers received exposures or injuries.

Industrial hygiene. The baseline evaluation provides a key component of an industrial hygiene program as suggested by the National Institute for Occupational Health and Safety:

An effective industrial hygiene program involves the anticipation and recognition of health hazards arising from work operations and processes, evaluation and measurement of the magnitude of the hazard (based on past experience and study) and control of hazard.

The industrial hygiene program provides information that is necessary for the effective medical surveillance program, which is a periodic evaluation of an employee by a health professional in order to assure that health problems associated with chemical exposures or physical agents are detected early, when there is time to prevent permanent or debilitating injury.”

DOE Std 6005-2001 *Industrial Hygiene Practices* lists the minimum data set to be included in a baseline industrial hygiene evaluation of an operation:

- Describe the work or task performed;
- Identify the potentially exposed worker;
- Identify and describe potential sources of hazardous agents;
- Evaluate the controls used to prevent or minimize exposure;

- Assess the level(s) of exposure;
- Include a conclusion, with rationale, whether the identified agent(s), their use(s), and the potential exposures they cause pose a hazard to workers (i.e., generate a positive or negative exposure assessment);
- Recommend additional controls for hazardous agents where necessary; and
- Recommend the scope and frequency of further exposure monitoring, as appropriate.

DOE Std 6005-2001 also discusses methods to produce a comprehensive baseline evaluation of a facility or site.

Industrial safety. The baseline evaluation of an operation's or facility's industrial safety hazards needs to collect the information needed to assess compliance with current standards, assess the risk that inadequacies pose, estimate the cost of correcting hazards and prioritize the correction of hazards. Industrial safety baseline data will vary greatly by hazard but generally requires the collection of less detailed information about a worker's exposure to the hazard than is required for industrial hygiene hazards. Most industrial safety hazards pose little or no future risk from past exposures. Such exposures would include work at heights that could result in falls, electrical shock hazards, working with sharp object that could cause cuts, crush or engulfment situations, thermal burn hazards, fires, explosions, etc. For these hazards, if no immediate injury occurs, there will be no future physical health consequence. Nonetheless, management can use industrial safety baseline data and accident experience (both at the site and published industrial experience elsewhere) to prioritize funding for hazard correction and the design of future controls.

3.3.3. Hazard Prevention and Abatement (851.22)

An effective hazard abatement program is essential to ensure that workers are protected from exposure to current and future workplace hazards. The focus of this program must be the control of identified workplace hazards. Where immediate control is not possible, the program must ensure the protection of workers while awaiting final abatement of the hazard. For significant hazards, this should include interim compensatory measures (e.g., limiting activities in the area, installing barriers and signs, providing hazard-specific training, and use of fire watches.). It must provide an efficient mechanism to ensure that all identified hazards are abated in a timely manner.

3.3.3.1. Hazard Prevention and Abatement Process [851.22(a)]

The rule requires contractors to implement a process to prevent or abate identified and potential hazards [851.22(a)].

3.3.3.1.1. During Design or Procedure Development [851.22(a)(1)]

For hazards identified either in the facility design or during the development of procedures, controls must be incorporated in the appropriate facility design or procedure [851.22(a)(1)].

Hazards that are identified in the design phase of new facilities and facility modifications or during the development or modification of procedures should be eliminated or controlled through design or procedure changes. The controls implemented should be commensurate with the risk level identified in the risk assessment process. For example, hazards that pose a serious threat to employee safety and health should be either eliminated or effectively controlled.

Proposed design or procedure modifications intended to eliminate or control hazards should be reviewed by worker protection professionals to ensure that the change adequately addresses the hazard and does not introduce new workplace hazards. Alternative control measures should be evaluated to determine the reduction of risk provided by each measure and identify the most effective practical control for the hazard.

Where hazards cannot be controlled through design changes, procedural or administrative controls or the use of personal protective equipment should be considered.

3.3.3.1.2. Existing Hazards [851.22(a)(2)]

For existing hazards identified in the workplace, abatement actions, which are prioritized according to risk to the worker, should be promptly implemented and interim protective measures must be implemented pending final abatement of the hazards. Workers should be protected immediately from dangerous safety and health conditions. Hazards must be systematically managed and documented through final abatement or control.

For existing hazards identified in the workplace, contractors must prioritize and implement abatement actions according to the risk to workers [851.22(a)(2)(i)]. The relative level of risk must be assessed for each identified hazard to ensure that hazard abatement efforts and resources are focused first on addressing the most serious workplace hazards. Conversely, low risk hazards may warrant only minimal abatement efforts and resources and if determined to either be, or have become, sufficiently low should be removed from the category of actively managed hazards.

Risk assessment is an essential element of effective risk management. The assignment of risk levels provides a relatively simple and consistent method of expressing the risk associated with worker exposures to identified hazards. A Department of Defense publication and an AIHA publication identified under "Additional resources" below describe risk assessment methodologies acceptable to DOE for meeting the risk assessment requirements of the Rule. Several DOE sites have developed tools for identifying hazards (some of which are automated), analyzing the hazards, and assigning a value to the level of risk of the hazards. These tools are useful for comprehensively reviewing (usually with a complete check list) all possible hazards of an activity, setting priorities for abatement of hazards, and for determining an appropriate level of work

control to apply to activities that present the hazard. These tools can be very efficient but users should be careful to truly analyze the identified hazards and not simply “check the boxes.”

Although important in prioritization and abatement planning, assigning a risk assessment code or level to a hazard should not be an impediment to quick abatement. If a hazard can be fixed immediately, assigning a risk category is not necessary, although organizations may prefer to assign one for trending purposes.

The determination of the priority assigned to the abatement of a specific hazard should first be based on the risk of injury or illness the hazard presents to the worker; however, other factors may be considered, including:

- Regulatory compliance;
- Resources (budget and personnel);
- Complexity of abatement; and
- The organization’s mission.

In some cases, it may be appropriate to address lower-level hazards before higher-level hazards if quick abatement is possible and effective interim protection is in place to protect workers from the higher level hazard until final abatement of the high level hazard can be implemented.

For existing hazards identified in the workplace, contractors must implement interim protective measures pending final abatement [851.22(a)(2)(ii)]. In the interval during which an abatement action is being carried out, contractor organizations must protect their employees from the identified hazards. A short-term strategy should be established that provides interim protection to employees. Methods such as administrative controls, work practice modifications, or personal protective equipment may be used to provide this interim protection. These measures must provide employees with protection that is equivalent to the permanent protection provided by compliance with relevant standards in 851.23 and Appendix A to Part 851.

For existing hazards identified in closure facilities, the most common approach to controlling worker exposure to closure facility hazards in a “cold and shutdown” closure facility is to control access to the facility. With access control, the closure facility hazards only pose risks to workers who have a need for access (e.g., for surveillance, maintenance, and preparation for decontamination and decommissioning activities). The hazards of those activities must be identified and controlled by the site’s work control process, and the hazards updated as often as necessary to ensure safe access for needed activities.

Portions of a facility may be designated as a closure facility as long as the hazards of the closure facility portion are isolated from workers that occupy the balance of the facility.

The level of risk associated with interim protective measures can be assessed to verify that equivalent protective measures are provided. The assessment of risk associated with interim protection, however, should not be used to lower the priority of final abatement actions. The hazard should be tracked and abated based on the initial risk assessment.

For existing hazards identified in the workplace, contractors must protect workers from dangerous safety and health conditions [851.22(a)(2)(iii)]. In the event a dangerous condition is discovered, immediate action must be taken either to correct the condition or to remove all employees from exposure to the condition until the danger has been abated.

3.3.3.2. Additional Resources

- MIL-STD-882D, System Safety Program Requirements, Appendix A www.safetycenter.navy.mil/instructions/osh/milstd882d.pdf, and
- Mulhausen, JR and Damiano, J, A Strategy for Assessing and Managing Occupational Exposures, Second Edition, AIHA Press, Fairfax, VA, 1998. (Available at <http://www.aiha.org/webapps/commerce/product.aspx?id=AEAK06-327&cat=Books&subcat=>).

3.3.3.3. Hierarchy of Controls [851.22(b)]

The Rule requires that hazard control methods be selected based on the following hierarchy [851.22(b)]:

- Elimination or substitution;
- Engineering controls;
- Work practices and administrative controls that limit worker exposures; and
- Personal protective equipment (PPE).

When elimination or substitution of the hazard is not feasible and appropriate or does not reduce the associated risk to acceptable levels, these controls may be supplemented with engineering controls. Where engineering controls are not feasible and appropriate or do not reduce the associated risk to acceptable levels, these controls may be supplemented with work practices and administrative controls. Where necessary, these controls may be further supplemented with the use appropriate PPE. PPE should not be considered as a control measure until all other methods of control have been explored.

3.3.3.3.1. Elimination or Substitution [851.22(b)(1)]

Elimination or substitution of hazards must be the first choice for controlling hazards. The contractor should verify that potential hazards of the substitution are identified and addressed before deciding to proceed.

3.3.3.3.2. Engineering Controls [851.22(b)(2)]

Engineering controls must be the second choice for controlling hazards after elimination or substitution of the hazard has been implemented to the extent feasible and appropriate. Feasibility analysis should consider characteristics of the technology available for the task; worker acceptance; level of protection provided; hazards, operations and maintenance burdens introduced; and cost. Principal engineering controls include:

- Enclosing the hazard;
- Locating hazardous operations or equipment in remote or unoccupied areas;
- Establishing physical barriers and guards; and
- Using local and general exhaust ventilation.

3.3.3.3.3. Work Practices and Administrative Controls [851.22(b)(3)]

Work practices and administrative controls must be the third choice for controlling hazards after elimination or substitution of the hazard and engineering controls have been implemented to the extent feasible and appropriate. The effectiveness of work practice and administrative controls depends on the ability of line management to make employees aware of established work practices and procedures, to reinforce the practices and procedures, and to provide consistent and reasonable enforcement. Administrative controls include:

- Written operating procedures, safe work practices, and work permits;
- Exposure time limitations;
- Limits on the use of hazardous materials and monitoring of such operations;
- Health and safety plans;
- Altered work schedules, such as working in the early morning or evening to reduce the potential for heat stress; and
- Training employees in methods of reducing exposure.

3.3.3.3.4. Personal Protective Equipment [851.22(b)(4)]

When elimination or substitution, engineering, and work practices and administrative controls have been considered and implemented and are not sufficient to fully protect the worker from a recognized hazard; personal protective equipment must be used to supplement these other controls as appropriate. PPE is acceptable as a control method:

- To supplement elimination or substitution, engineering, and work practices and administrative controls when such controls are not feasible or do not adequately reduce the hazard;

- As an interim measure while engineering controls are being developed and implemented;
- During emergencies when elimination or substitution, engineering, and work practices and administrative controls may not be feasible; and
- During maintenance and other non-routine activities where other controls are not feasible.

The use of PPE can itself create significant worker hazards, such as heat stress; physical and psychological stress; and impaired vision, mobility, and communication. An example would be a worker wearing several layers of protective clothing (for contamination control), a respirator, gloves, and a helmet while welding or cutting. This arrangement of PPE could prevent the worker from being aware of the environment in the event of a fire or other emergency.

In these situations, engineering and/or administrative controls (e.g., a fire watch to ensure the safety of the worker as well as the property) should be implemented to supplement PPE. Equipment and clothing should be selected that provide an adequate level of protection. The selection process should involve representatives of the affected safety disciplines (e.g., health physicist, industrial hygienist, fire protection staff, etc.) working in concert with workers and supervisors.

Two basic objectives of any PPE practice should be to protect the wearer from safety and health hazards, and to prevent injury to the wearer from incorrect use or malfunction of the PPE. To accomplish these objectives, a comprehensive PPE program should include hazard identification (hazards that PPE will protect against and hazards caused by the use of PPE); medical monitoring; environmental surveillance; selection, use, maintenance, and decontamination of PPE; and associated training.

Respiratory protective equipment, including protective suits that provide breathing air, must be approved by the National Institute for Occupational Safety and Health (NIOSH) or accepted under the DOE Respiratory Protection Acceptance Program if NIOSH-approved respirators do not exist for specific DOE tasks (29 CFR 1910.134 and 10 CFR 850.28). Information about DOE's Respiratory Protection Acceptance Program is found in DOE-STD-1167-2003 *Respiratory Acceptance Program for Supplied-Air Suits* available at <http://www.eh.doe.gov/techstds/standard/recappts.html>

3.3.3.4. Purchasing Equipment, Products, and Services [851.22(c)]

Hazards must be addressed when selecting or purchasing equipment, products, and services [851.22(c)]. Provisions should be made for worker protection professional and employee evaluation of pre-engineered or "off-the-shelf" equipment prior to selection and purchase.

This evaluation should focus on whether the equipment or procured material (e.g., parts, chemicals, or fasteners) can perform its required task without endangering the health and

safety of workers (e.g., use of steel cable adequately rated for the anticipated weight of the loads) given existing facility and operational constraints. Evaluation methods should include:

- Review of equipment or material specifications;
- Observations of equipment or material demonstrations;
- Change analyses;
- Operational hazard analyses;
- Ergonomic and human factor analyses; and
- Checks for suspect or counterfeit parts.

Worker protection considerations to be taken into account when reviewing equipment specifications include, but are not limited to—

- Health hazards;
- Operating noise;
- Temperature levels;
- Point-of-operation guards;
- Lockout provisions;
- Presence of hazardous material;
- Training requirements for safe operation;
- Ergonomic design, worker-to-machine interface;
- Maintenance requirements;
- Availability and practicality of “add-on” (post-purchase) worker protection equipment; and
- Existing facility and operational constraints (e.g., floor loading, hazards from adjacent operations, congested workplaces, etc.).

After installation of complex or potentially hazardous equipment, a pre-startup evaluation with affected workers, supervisors, and worker protection professionals should be conducted to verify safe conditions and identify any previously unforeseen hazards.

3.3.3.5. Additional Resources

- Center for Chemical Process Safety, *Guidelines for Hazard Evaluation Procedures*, 2nd edition, American Institute of Chemical Engineers, New York, NY, 1992. (Available at <http://www.aiche.org/apps/pubcat/seadtl.asp?ACT=S&Title=ON&srchText=Guidelines+for+Hazard+Evaluation+Procedures.>)
- 29 CFR 1910, Occupational Safety and Health Administration.
- MIL-STD-882D, System Safety Program Requirements, Appendix A www.safetycenter.navy.mil/instructions/osh/milstd882d.pdf
- Department of Defense Instruction No. 6055.1, Department of Defense Occupational Safety and Health Program, E7. Enclosure 7, www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf,

3.3.4. Safety and Health Standards (851.23)

The Rule lists safety and health standards with which the contractor must comply when applicable to site hazards (851.23). The Rule references additional standards in other parts of the Rule that the contractor must comply with when applicable and provides a complete list of all the referenced standards and the sources of those standards in 851.27 *Reference sources*.

Contractors should determine whether additional standards are needed for their workplaces and activities to control recognized hazards. If necessary to protect the safety and health of workers, contractors must include such additional standards in their written worker safety and health program [851.23(b)]. An example of an additional standard that might be needed is the American National Standards Institute (ANSI) B-30 Series, Cranes.

When ACGIH TLV[®]s are used as exposure limits, contractors must nonetheless comply with the other provisions of any applicable OSHA substance-specific health standard. DOE recognizes that OSHA health standards and ACGIH TLV[®]s often are not expressed in directly comparable formats. Contractors should use their qualified worker safety and health staff (see 3.3.1.1.2 in this Guide) to determine the appropriate exposure limits and applicable provisions and may request clarification from DOE's HS-11 (see 3.1.8 in this Guide). Users of ACGIH TLV[®]s should consult *Documentation of the Threshold Limit Values and Biological Exposure Indices*, 7th Ed., American Conference of Governmental Industrial Hygienists, <http://www.acgih.org/store/>, to ensure that they understand how to apply the TLV[®]s properly.

The listed OSHA regulations are not dated but the consensus standards are. The current version of OSHA regulations are incorporated into the Rule by reference because they are promulgated pursuant to public rulemaking. Only the versions of consensus standards that were in effect on February 9, 2006 were promulgated pursuant to rulemaking (this

Rule) therefore only those specifically cited versions are required by the Rule. Contractors may include successor versions of the consensus standards that provide equal or greater worker protection if included in their DOE-approved worker safety and health program. For example, because the 2005 ACGIH TLV[®]s are specifically cited in the Rule at 851.27(b)(6) they are therefore required. ACGIH publishes TLV[®]s every year but successor versions to 2005 are not required by the Rule. Contractors have the option of substituting successor versions of the ACGIH TLV[®]s as long as those TLV[®]s are more protective than the 2005 TLV[®]s and the substitution is included in the DOE-approved worker safety and health program. Users of successor ACGIH TLV[®]s should consult the corresponding *Documentation of the Threshold Limit Values and Biological Exposure Indices* to assure that they understand how to properly apply those specific TLV[®]s.

Contractors can assume that HS-11 will concur with utilizing existing and future OSHA standards interpretations listed on the OSHA website www.osha.gov to evaluate compliance with the requirements of the OSHA regulations listed in 851.23(a)(1) through (a)(8). Contractors also may request validation by HSS that an OSHA standards interpretation applies to a particular situation or request additional technical interpretations of OSHA regulations by submitting questions to the DOE Standards Response Line at <http://www.eh.doe.gov/il/question/new.cfm>.

Part 851.23(a)(1) requires compliance with the Chronic Beryllium Disease Prevention Program (CBDPP) in 10 CFR 850. In addition, to ensure consistency, 10 CFR 850 was revised as part of the same rulemaking effort to clarify that the CBDPP is considered to be an integral part of the Rule and that the CBDPP required under 10 CFR 850 is enforceable under 10 CFR 851.

The Rule at 851.23(a)(3) lists 29 CFR Part 1910 *Occupational Safety and Health Standards*, excluding 29 CFR 1910.1096 *Ionizing Radiation*. The Rule at 851.23(a)(7) lists 29 CFR Part 1926 *Safety and Health Regulations for Construction* but does not explicitly exclude 29 CFR 1926.53 *Ionizing Radiation* which is similar to 1910.1096 and invokes compliance with 10 CFR Part 20. However, 851.2(b) *Exclusions* excludes *radiological hazards . . . to the extent regulated by 10 CFR Parts 20, 820, 830 or 835*. Thus, in accordance with this regulatory exclusion, contractors are not required to comply with 29 CFR 1926.53 *Ionizing Radiation*.

Some of the standards cited in the Rule reference additional, i.e., secondary, standards. Contractors are required to comply with secondary standards that are applicable to identified hazards. The primary standards that reference secondary standards usually state how these secondary standards are to be used. For example, 29 CFR 1910.6(a)(1) states the following:

The standards of agencies of the U.S. Government, and organizations which are not agencies of the U.S. Government which are incorporated by reference in this part, have the same force and effect as other standards in this part. Only the mandatory provisions (i.e., provisions containing the word "shall" or other mandatory language) of standards incorporated by reference are adopted as standards under the Occupational Safety and Health Act.

Similarly, mandatory provisions of secondary standards are incorporated by reference in 10 CFR 851 and have the same force and effect as primary cited standards. For example, ANSI Z49.1, Safety in Welding, Cutting and Allied Processes, is incorporated by reference in 851.23. Section 4.2.2.1 of this standard specifies that “filter lenses shall be in accordance with ANSI Z87.1 and the shade shall be selected in accordance with AWS F2.2.” Therefore, 10 CFR 851 requires compliance with ANSI Z87.1 and AWS F2.2 for welding filter lenses and their shade. ANSI Z49.1 also includes references to other codes and standards that provide additional information on particular topics but are not mandatory requirements. Those other codes and standards are not required by 10 CFR 851.

3.3.4.1. Authority Having Jurisdiction (AHJ) and Equivalencies

NFPA 70, *The National Electrical Code*, is a standard that is explicitly identified in the Rule and that includes provisions for an AHJ. NFPA 70 includes an AHJ with authority to approve equivalencies [NFPA 70 (2005), Annex G 80.9 (C)]. NFPA 70 defines the AHJ as “the organization, office, or individual responsible for approving equipment, materials, an installation, or a procedure.” NFPA 70 contains several provisions that allow the AHJ to approve alternatives that provide equivalent levels of protection, i.e., “equivalencies” to the levels provided by the standard. Other consensus standards that are included in a contractor’s approved WSHP may include the AHJ or similar provisions.

The criteria for designating the AHJ have been handled differently in various DOE handbooks and technical standards, and the preamble to the Rule. For implementation of the Rule and to be consistent with DOE Technical Standard 1066-99 *Fire Protection Design Criteria* and DOE Handbook 1188-2006 *Glossary of Environment, Safety and Health Terms* (both available by searching at <http://www.directives.doe.gov/>), the AHJ should be the head of the DOE field element or designee that has the requisite knowledge and abilities or has access to someone that has the knowledge and abilities. Ultimately, the head of the DOE field element is authorized to approve the contractor’s WSHP and therefore can decide whether to personally perform the AHJ function with the help of qualified advisors or designate a qualified person to perform that function, or whether or not the AHJ must be a DOE person.

Individuals meeting the requirements of *Fire Protection Engineering Functional Area Qualification Standard*, DOE-STD-1137-2000, and *Electrical Systems Functional Area Qualification Standard*, DOE-STD-1170-2003, available at <http://www.eh.doe.gov/techstds/standard/standard.html#1001>, are examples of persons that have the requisite knowledge and abilities to advise the head of the DOE field element or designee on fire protection or electrical safety equivalencies, respectively.

Equivalencies that were granted prior to the promulgation of the Rule, and in accordance with AHJ and equivalency provisions of a code or standard that is included in a DOE-approved worker safety and health program, should continue to be acceptable to DOE and not require a variance. (See paragraph 3.4 of this Guide for information about variances.) Those equivalencies should be identified in the DOE-approved worker safety

and health program. The equivalency process is separate from the variance process outlined in subpart D of the Rule.

The following discussion is focused on the AHJ for electrical safety but the principles also apply to fire prevention and any other functional area requirements in the Rule that have AHJ provisions.

The Model Electrical Safety Program (MESP) in DOE's *Electrical Safety Handbook* (DOE-HDBK-1092-2004) provides an example of an acceptable electrical safety program for DOE contractors. Section 4 of the MESP defines the AHJ as the entity that interprets applicable electrical safety requirements including those established in NFPA 70 and the electrical safety provisions of the OSHA standards. Section 4 of the MESP further states that the AHJ approves electrical equipment, wiring methods, electrical installations, and utilization equipment for compliance. This is only correct for situations in which an AHJ provision applies as explained below.

The Rule, in 10 CFR 851.23, defines mandatory electrical safety requirements as NFPA 70 and NFPA 70E as well as the applicable electrical safety regulations promulgated by OSHA such as Subpart S of 29 CFR 1910 for general industry operations and Subpart K of 29 CFR 1926 for construction operations. DOE's intent in 10 CFR 851 is that the technical requirements of 10 CFR 851.23 be applied consistent with the provisions of the individual standards as well as the programmatic requirements of the Rule.

Specifically, DOE intends for the AHJ provisions discussed in the MESP to apply in full to the implementation of NFPA 70 but only to components of the OSHA regulations that incorporate NFPA standards by reference and include an AHJ or similar provision. DOE's rationale for this intent is that the AHJ provisions of the MESP parallel those established in NFPA standards such as NFPA 70. For example, Article 90-4 of NFPA 70 establishes that the AHJ has the responsibility to interpret rules, approve equipment and materials, and waive specific requirements of NFPA 70 or permit the use of alternate methods where such methods provide equivalent protection. Thus, in mandating compliance with NFPA 70 in 10 CFR 851.23, DOE adopts the full text of the standard including the AHJ provisions of that standard.

On the other hand, Subpart S of 29 CFR 1910 contains some requirements that are affected by NFPA 70 and others that are not. OSHA standards that do not incorporate a consensus standard that includes an AHJ provision do not provide for an AHJ that can permit the use of alternate methods. The Rule provides that such deviations from the letter of the OSHA standards be permitted only if approved through the formal variance process outlined in subpart D of the Rule. DOE encourages the use of an AHJ when permitted by the applicable code or standard in assisting in the proper interpretation of electrical safety requirements. Interpretations of electrical safety requirements in the absence of a code or standard that includes an AHJ provision are not binding on DOE unless issued under the provisions of 10 CFR 851.7, *Requests for a binding interpretive ruling*.

3.3.4.2. Code of Record

Certain codes and standards provide implementation flexibility in the form of “Code of Record.” Code of Record refers to acceptability of the code that was in effect at the time a facility or item of equipment was designed and constructed rather than the current code or standard. The appropriate version of a Code of Record is the version that was in effect when approvals were obtained for the phase of the project for which the code applied, regardless of the duration of the project. Revised codes do not supersede previous codes for phases of the project that already have been approved.

Code of Record provisions that exist in the codes and standards that are explicitly referenced in the Rule in 851.27(b) are considered part of the Rule and can be exercised in implementing the Rule. For example, NFPA 70 indicates that it applies to new buildings but not to existing buildings (NFPA 70 (2005), Annex G 80.13). In addition, the pressure safety codes specify that current code requirements apply only to new design and construction. Similarly, flexibility provisions in codes and standards that are not explicitly identified in the Rule but are included in the contractor’s DOE-approved worker safety and health program can be exercised in implementing the Rule.

3.3.4.3. Previously Granted Exemptions

DOE Orders allow the approval of exemptions from requirements in DOE Orders, Notices, and Manuals (DOE M 251.1-1B, *Departmental Directives Program Manual*, Chapter X, available by searching on site <http://www.directives.doe.gov/>) and many such exemptions have been granted at DOE sites. The Rule has no provision for these pre-existing exemptions therefore exemptions to requirements in DOE Orders that are superseded by the Rule are not valid as of the Rule’s implementation date of May 25, 2007. The Rule’s variance process (Subpart D) can be used to request relief from a Rule requirement (see 3.4 of this Guide for more information about variances). The Contractor Requirements Document of DOE O 440.1A was superseded by the Rule so exemptions previously granted to requirements in that Order will not be valid as of the Rule’s implementation date. In general, exemptions to DOE Orders other than O 440.1A are not affected by the Rule however, it is possible that the Rule supersedes a worker safety and health requirement of a DOE Directive (Order, Notice, or Manual) other than O 440.1A and exemptions to any such requirements would also not be valid as of the implementation date of the Rule.

3.3.5. Functional Areas (851.24)

Contractors must make provisions in their worker safety and health program for the following functional areas that are applicable to the hazards at their site: construction safety; fire protection; firearm safety; explosive safety; pressure safety; electrical safety; industrial hygiene; occupational medicine; biological safety; and motor vehicle safety (851.24). Contractors are subject to all applicable standards and provisions in Appendix A to Part 851. See paragraph 3.6 of this Guide for detailed implementation guidance for the functional area requirements.

3.3.6. Training and Information (851.25)

The Rule requires DOE contractors to provide workers with worker protection training [851.25(a)]. Training also should be provided to supervisors, collateral duty safety and health personnel and committee members, and employee representatives that work for the contractor. Training should be included as a component of the written worker safety and health program.

The worker safety and health training and information program (851.25) is an integral component of the WSHP. If a subcontractor works under the contractor's WSHP, then the contractor's WSHP should describe the approach and process used to flow down the training program requirements to the subcontractor. The training program requirements that flow-down should be consistent with the scope and complexity of the work to be performed by the subcontractor. For subcontractors that will work to their own WSHPs, the contractor should review the training program to verify consistency with the contractor's program. One acceptable approach would be to require that subcontractor employees be trained through the contractor's training program. Alternatively, the subcontractor's own training program should be acceptable once it is verified by the contractor to be consistent with the contractor's program.

3.3.6.1. Additional Resources

- DOE's Industrial Hygiene/Occupational Safety Special Interest Group (IH/OS SIG) is a peer-to-peer network of personnel from the U.S. Department of Energy community involved in occupational safety and health training. The IH/OS SIG provides the DOE community with tools for the development, enhancement, and/or implementation of training designed to improve worker safety and health. The IH/OS SIG's Web site (http://orise.ornl.gov/ihos/index_DOETSLindexPostings.htm) provides information about the DOE's Technology Supported Learning (TSL) Index of training products developed by the DOE complex that are available to the DOE community upon request.
- U.S. Department of Energy, DOE-HDBK-1074-95, *Alternative Systematic Approaches to Training*, January 1995, <https://www.eh.doe.gov/techstds/standard/hdbk1074/hdb1074a.html>
- American National Standards Institute, ANSI Z490.1-2001, *Accepted Practices for Safety, Health, and Environmental Training*, <http://webstore.ansi.org/ansidocstore/default.asp>
- U.S. Occupational Safety and Health Administration Publication 2254, *Training Requirements in OSHA Standards and Training Guidelines*, Revised: 1998, <http://www.osha.gov/pls/publications/pubindex.list>

3.3.7. Recordkeeping and Reporting (851.26)

The Rule requires contractors to:

- Maintain complete and accurate records of hazard inventory information, hazards assessments, exposure measurements, and exposure controls [851.26(a)(1)];
- Report injuries and illnesses consistent with DOE M 231.1-1A, *Environment, Safety and Health Reporting Manual*, dated 9-9-04 [851.26(a)(2)];
- Comply with the injury and illness recordkeeping and reporting sections of the health standards in 851.23 unless otherwise directed in DOE M 231.1-1A [851.26(a)(3)];
- Neither conceal nor destroy information concerning compliance with the Rule [851.26(a)(4)]; and
- Investigate (DOE Order 225.1A *Accident Investigations*); analyze for trends (DOE Order 210.2 *DOE Corporate Operating Experience Program*); (both available by searching on <http://www.directives.doe.gov/>) and report accidents, injuries, and illnesses [851.26(b)].

The hazard inventory required by 851.26(a)(1) must be complete and accurate and should include sufficient detail for reviewers to characterize the hazards retrospectively.

Exposure monitoring data should include:

- Exposure levels;
- The date(s), number, duration, location and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure where applicable;
- A description of the sampling and analytical methods used and evidence of their accuracy;
- The type of PPE worn, if any;
- Name, social security number, employee identification number if different from the social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and
- The environmental variables that could affect the measurement of employee exposure.

Where it has been determined that no monitoring is required, a record of the objective data relied upon to support the determination that no employee is exposed at or above an action level or occupational exposure limit, as appropriate, should be maintained. Records containing personal identifiers must be maintained consistent with Privacy Act requirements.

Contractors should keep exposure monitoring records for 75 years. That is the duration required in the recordkeeping provisions of 10 CFR 850 “Chronic Beryllium Disease Prevention Program” and the duration of records needed to conduct epidemiological studies.

Other Objective Data:

Objective data records should be kept as long as the contractor relies on this data.

The 851.26 (a)(1) requirement to maintain records of hazard inventory information refers to the compilation of information, materials and documents generated from the contractor’s activities under 851.21 Hazard identification and assessment, parts (a), (b) and (c).

Summaries or representative information may be sufficient for routine and regularly changing hazards, (e.g., heat stress levels and changes in potential heavy metals exposures at different building demolition locations).

Title 10 CFR 850 *Chronic Beryllium Disease Prevention Program* includes part 850.39 *Recordkeeping and use of information*. Title 10 CFR 850.39(h) requires contractors to transmit to the Office of Health, Safety and Security an electronic registry of beryllium-associated workers. The registry identifies these workers and includes data on their jobs, exposures and medical status. Procedures for completing and transmitting the data are found in DOE-STD-1187-2005, *Beryllium-Associated Worker Registry Data Collection and Management Guidance* (<http://www.eh.doe.gov/techstds/standard/recappts.html>).

The Office of Enforcement will use its voluntary Noncompliance Tracking System (NTS), which allows contractors to elect to report noncompliance. See Appendix B to Part 851—*General Statement of Enforcement Policy, IX.5. Self-Identification and Tracking Systems* for more information. Title 10 CFR 851 NTS Reporting Thresholds for reporting noncompliance of potentially greater worker safety and health significance into the NTS are available from a link on <http://www.eh.doe.gov/enforce/index.html>. The NTS is described in the guidance document, Enforcement Program Plan, also available from a link at <http://www.eh.doe.gov/enforce/index.html>.

3.3.7.1. Hazard Abatement Tracking [851.26(a)]

Hazard abatement is a component of hazard assessment and control. Hazard abatement management requires a mechanism to track all planned abatement activities through to completion. Therefore, all hazards identified during worker protection evaluations should

be recorded regardless of whether the evaluation was conducted by DOE, contractors, or external agencies such as OSHA. In addition, hazards identified by employees or line management should be recorded if they are not immediately abated.

Hazard Abatement Information. Hazard abatement information may be in any format (electronic or paper file), as long as it (1) meets its purpose of documenting identified hazards and associated corrective actions through final abatement, (2) allows for appropriate planning and budgeting decisions, and (3) is retrievable. Electronic records are generally much more convenient than paper records and are preferred.

Contractors may not need to collect and maintain hazard information for hazards that rank low in assessed risk or have been abated quickly and easily. Contractors should establish a risk threshold below which hazard information need not be collected.

The following elements should be included in the documentation for each hazard:

- Location;
- Date found;
- Description of hazard;
- Referenced standard in 851.23 or Appendix A to Part 851, or other standard included in the DOE-approved worker safety and health program;
- Planned corrective action;
- Estimated cost of abatement;
- Interim protective measures;
- Abatement period (number of calendar days);
- Scheduled abatement date;
- Actual abatement date;
- Risk level; and
- Record identification number (unique identifying number).

In addition, the information should indicate if actual corrective action differs from planned corrective action.

Coordination. DOE field elements should be kept informed of the status of abatement activities. The contractor line organization should coordinate this reporting process with the field element to establish reporting mechanisms acceptable to both parties. In

addition, the field element should establish the ability to request copies of the hazard abatement activity documentation at any time.

3.3.7.2. Reporting and Investigating; Analyzing Trends (851.26(b))

Information about accident, injury, and illness reporting and investigating; and analysis of related data for trends and lessons learned; are contained in DOE O 231.1, *Environment, Safety and Health Reporting*; and DOE O 225.1, *Accident Investigations* (both available by searching at <http://www.directives.doe.gov/>).

3.3.8. Reference Sources (851.27)

The Rule incorporates by reference a number of American National Standards Institute (ANSI), National Fire Protection Association (NFPA), American Conference of Governmental Industrial Hygienists (ACGIH), American Society of Mechanical Engineers (ASME) consensus standards and DOE Directives. It also indicates where those standards are available for inspection.

3.4. Variance Process (Subpart D)

A DOE contractor may apply for a variance (1) if it is unable to comply with a standard by its effective date because of unavailability of professional or technical personnel or materials and equipment needed to come into compliance with the standard or because necessary construction or alteration of facilities cannot be completed by the Rule's effective date, (2) if it is able to provide workers a place of employment as safe and healthful using alternate means as would result from compliance with the standard from which the variance is sought; or (3) where the variance is necessary to avoid serious impairment of national defense.

3.4.1. Consideration of Variance (851.30)

The Rule allows the Under Secretary to grant variances that meet the requirements of 851.31 [851.30] after considering the recommendation of the Chief Health, Safety and Security Officer. In applying for a variance, contractors must provide the information required in 851.31 for the specific type of variance being requested. The authority to grant variance cannot be delegated.

Contractors should discuss the possibility of filing a variance application with representatives of the head of the DOE field element and the Cognizant Secretarial Office prior to filing the request in order to gain a preliminary view of the sufficiency of the supporting material and likelihood of the request being granted. Such discussions are encouraged as a means to improve the efficient use of resources. The head of the DOE field element also should provide the CSO with its recommendation for the approval and terms and conditions (see 851.33) of variance applications that it supports. The head of the DOE field element should coordinate variance applications for which multiple CSOs have responsibilities for programs that would be affected by the variance.

Flexibility in Codes and Standards. Relief from technical compliance with certain codes and standards may be available within the code or standard in which case a variance may not be needed. Certain codes and standards provide implementation flexibility in the form of—

- An Authority Having Jurisdiction that can permit the use of alternate methods where such methods provide equivalent protection (referred to as “equivalencies”). (Paragraph 3.3.4.1 of this Guide discusses the AHJ and equivalencies.) The AHJ is authorized to approve equivalencies, and
- Acceptability of the code that was in effect at the time a facility or item of equipment was designed and constructed (referred to as the Code of Record) rather than the current code. (Paragraph 3.3.4.2 of this Guide discusses Code of Record.)

Any of the above flexibility provisions that exist in the codes and standards that are explicitly referenced in the Rule in 851.27(b) is considered part of the Rule and may be exercised in implementing the Rule. Equivalencies approved by the AHJ and Code of Record accepted for facilities should be documented and retrievable for as long as the documents are in effect.

The Rule does not provide for applying similar flexibility to codes and standards, either those that are explicitly incorporated in the Rule or those that are adopted by a contractor and included in their worker safety and health program, that do not contain flexibility provisions such as the AHJ and Code of Record. Most consensus codes and standards contain such provisions so the fact that the Rule does not provide generic flexibility for codes and standards should rarely present a problem to DOE sites.

3.4.2. Variance Process (851.31)

The Rule includes detailed requirements for the variance application, its content, and additional specific requirements for different types of variances (851.31).

3.4.2.1. Variance Application [851.31(a)]

Contractors desiring a variance from a safety and health standard required by 851 may submit a written application to the appropriate Cognizant Secretarial Officer (CSO) [851.31)(a)].

The Safety and Health Standards in 851.23 are specifically incorporated by reference. Some of the cited Safety and Health Standards (most notably 29 CFR 1910 and 29 CFR 1926) also invoke and incorporate by reference (see Sections 29 CFR 1910.6 and 29 CFR 1926.31) many specific codes and standards. OSHA has made clear that these codes and standards are part of their regulations and have the same force and effect as the other OSHA standards. The variance process in 851.31 would also need to be utilized for any situations where contractors desire to deviate from the codes and standards incorporated by reference in 29 CFR 1910 and 29 CFR 1926.

The Rule requires contractors to comply with additional specific safety and health requirements that are not explicitly referenced in the Rule but are necessary to protect workers [851.23(b), 851 Appendix A, Section 2(b), etc.]. Those additional specific safety and health requirements (typically codes and standards) should be included in the contractor's DOE-approved worker safety and health program. The variance process in 851.31 would also need to be utilized for any situations where contractors desire to deviate from the applicable codes and standards that were not explicitly referenced in the Rule but are included in the DOE-approved worker safety and health program.

The CSO reviews the application to determine if the situation warrants a variance. The CSO forwards applications that are warranted to the Chief Health, Safety and Security Officer for consideration and preparation of a recommendation to the Under Secretary. The CSO returns to the contractor applications that are not warranted. The CSO should ensure that variances are evaluated and decided in a timely manner. The Chief Health, Safety and Security Officer, must review the application to determine whether the information provided is complete and, if so, make a written recommendation to the Under Secretary to either approve the application, approve the application with conditions, or deny the application.

3.4.2.2. Defective Applications [851.31(b)]

The Chief Health, Safety and Security Officer may determine that an application for a variance is incomplete and may return the application to the contractor with a written explanation of what information is needed to permit consideration of the application, or request the contractor to provide necessary information. The Chief Health, Safety and Security Officer should notify the CSO that the application is incomplete and explain what is lacking. Also, the Under Secretary could return a defective application to the CSO with written directions on how to change it to make it acceptable. Denial of a defective application will be without prejudice to submitting another application.

3.4.2.3. Content [851.31(c)]

The Rule includes explicit requirements for the content of the variance application [851.31(c) and (d)].

All variance requests must include the name and address of the contractor and the involved DOE sites; the standard from which a variance is sought; a request for a conference if desired; a statement of how the workers were informed of the application and their right to petition the Chief Health, Safety and Security Officer.

3.4.2.4. Types of Variances [851.31(d)]

The Rule provides for temporary, permanent, and national defense variances with varying requirements for each one [851.31(d)].

3.4.2.4.1. Temporary Variance [851.31(d)(1)]

Applications submitted for a temporary variance from a new safety or health standard must be submitted at least 30 days before the effective date of the new standard and include:

- the contractor's statement that the contractor is unable to comply with the standard by its effective date and why;
- a statement of the steps the contractor has taken and plans to take to protect workers against the hazard covered by the standard;
- A statement of when the contractor expects to be able to comply with the standard and of what steps the contractor will take to come into compliance with the standard;
- A statement of facts establishing that the contractor is unable to comply because of unavailability of key resources or sufficient time for construction or alteration; is taking steps to safeguard the workers; and has a program for coming into compliance as quickly as practicable.

The application should:

- Identify the specific activities that would be necessary to implement the requirement for which the variance is being requested;
- Discuss the circumstances which warrant the variance (see 3.4.3.2 below);
- Provide justification that there will be no significant increase in risk to the public, facility workers, or the environment that would result from granting the variance versus implementing the requirement;
- Discuss any proposed alternatives or mitigating actions taken to provide protection from the hazard covered by the requirement;
- State what benefit is realized by not meeting the requirement from which the variance is requested;
- Identify any urgent circumstances warranting the necessity for a temporary variance, as well as when compliance will be achieved, if temporary variance is approved; and
- Include any additional information that is not requested above, but is helpful to understand the request and support its approval.

3.4.2.4.2. Permanent Variance [851.31(d)(2)]

As in the cases of the other types of variances, a permanent variance application must include the name and address of the contractor and involved DOE sites; the standard from which the variance is sought; a request for a conference if desired; a statement of how the workers were informed of the application for a variance and their right to petition the Chief Health, Safety and Security Officer [851.31 (c)] and an additional statement showing how the conditions, practices, means, methods, operations, or processes proposed would be as safe and healthful as the standard from which a variance is sought.

3.4.2.4.3. National Defense Variance [851.31(d)(3)]

As with the other types of variances, a national defense variance application must include the basic information required by § 851.31(c) and additional statements showing that the variance is necessary and proper to avoid serious impairment of national defense and how the conditions, practices, means, methods, operations, or processes used or proposed to be used would provide workers a safe and healthful place of employment in a manner that, to the extent practical, taking into account the national defense mission, is consistent with the standard from which the variance is sought. National defense variances will only be granted for six months unless a longer period is essential to carrying out a national defense mission. Contractors must update and resubmit applications for additional six month periods.

National defense variances may be applicable not only for NNSA activities, but also for other activities for which the criteria apply e.g., for protective forces providing safeguards and security and responders performing fire and emergency rescue operations at sites carrying out a national defense mission.

3.4.3. Action on Variance Requests (851.32)

3.4.3.1. Procedures for an Approval Recommendation - Adequate Applications [851.32(a)]

If the Chief Health, Safety and Security Officer recommends approval of the application, it must be forwarded to the Under Secretary. The Under Secretary must notify the Chief Health, Safety and Security Officer of approved variances. The Chief Health, Safety and Security Officer notifies the Office of Price-Anderson Enforcement and the Cognizant Secretarial Officer (CSO). The (CSO) must promptly notify the contractor. The notification must include a reference to the safety and health standard that is the subject of the application, a detailed description of the variance, the basis for approval and any terms and conditions of the approval. Similarly, if the variance is denied, the Under Secretary must notify the Chief Health, Safety and Security Officer who notifies the CSO who notifies the contractor of the denial and the grounds for denial [851.32 (a)(4), (5)].

3.4.3.2. Approval Criteria [851.32)(b)]

The Under Secretary may grant a variance only if the variance:

- Is consistent with Section 3173 of the NDAA;
- Would not present an undue risk to the worker's safety and health;
- Is warranted under the circumstances; and
- Satisfies the requirements of 851.31 for the type of variance requested.

Circumstances that could warrant granting of a variance include:

- Application of the requirement in the particular circumstances conflicts with other requirements; or
- Application of the requirement in the particular circumstances would not serve, or is not necessary to achieve, its underlying purpose; or would result in resource impacts which are not justified by the safety improvements; or
- Application of the requirement would result in a situation significantly different than that contemplated when the requirement was adopted, or that is significantly different from that encountered by others similarly situated; or
- The variance would result in benefit to human health and safety that compensates for any detriment that may result from the granting of the variance; or
- Circumstances exist which would justify temporary relief from application of the requirement while taking good faith action to achieve compliance; or
- There is present any other material circumstance not considered when the requirement was adopted for which it would be in the public interest to grant a variance.

3.4.3.3. Procedures for a Denial Recommendation [851.32)(c)]

In the event the Chief Health, Safety and Security Officer recommends denial of a variance application [851.32)(c)], the Chief Health, Safety and Security Officer must notify the CSO of the denial recommendation and grounds for it. The CSO may notify the contractor that the request is denied for the grounds cited by Chief Health, Safety and Security Officer; or forward to the Under Secretary the denial recommendation and any information that supports an action different from that recommended by the Chief Health, Safety and Security Officer. If the Under Secretary approves the variance, the same notification procedures as described in paragraph 3.4.3.1, above, apply. Denial of an application will be without prejudice to submitting another application.

3.4.3.4. Grounds for Denial of a Variance [851.32)(d)]

The Rule includes grounds for denial of a variance [851.32)(d)].

One of the grounds for denial is if enforcement of the violation would be handled as a de minimis violation (defined as a deviation from the requirement of a standard that has no direct or immediate relationship to safety or health, and no enforcement action will be taken), [851.32)(d)(1)].

Another grounds for denial is when a variance is not necessary for the conditions, practice, means, methods, operations, or processes used or proposed by the contractor [851.32(d)(2)]. (See sections 3.3.4.1 and 3.3.4.2 for information on equivalencies and code of record.)

A third basis for denial is that the contractor does not demonstrate that the approval criteria are met [851.32(d)(3)].

3.4.4. Terms and Conditions [851.33]

A variance may contain appropriate terms and conditions including, but not limited to, provisions that:

- Limit its duration;
- Require alternative action;
- Require partial compliance with the standard; or
- Establish a schedule for full or partial compliance with the standard.

3.4.5. Requests for Conferences [851.34]

Any affected contractor or worker may file with the Chief Health, Safety and Security Officer a request for a conference on the application. The request must include:

- A concise statement of facts showing how the contractor or worker would be affected by the variance applied for;
- A specification of any statement or representation in the application which is denied, and a concise summary of the evidence that would be adduced in support of each denial; and
- Any views or arguments on any issue of fact or law presented.

The Chief Health, Safety and Security Officer must respond to a request for a conference within 15 days and if granted must indicate the time, place, and DOE participants in the conference.

Contractors may find it useful to coordinate requests for conferences with their head of the DOE field element and CSO.

3.5. Enforcement Process (Subpart E).

See Office of Enforcement's Enforcement Program Plan, available from a link at <http://www.eh.doe.gov/enforce/index.html>, for additional guidance on enforcement of the Rule.

3.6. Worker Safety and Health Functional Areas (Appendix A to Part 851)

Appendix A establishes the requirements for implementing applicable functional areas required by 851.24.

3.6.1. Construction Safety (Appendix A, Section 1)

Implementation guidance for construction contractors may be found within the relevant provisions of DOE Guide 440.1-2, Construction Safety Management Guide for Use with DOE Order 440.1.

The construction contractor is required to have a designated representative on site at all times during active construction [Appendix A, Section 1(b)]. In the written construction project safety and health plan, the individual(s) responsible for on-site implementation of the plan is to be identified by name, along with his, or her, qualifications. Nothing in the Rule, however, prevents the primary designated representative from further designating other individuals to represent the contractor during periods when the primary designated representative is absent from the jobsite. For example, a foreman or other senior contractor employee may be designated to act in the absence of the primary contractor representative. The objective of this requirement is to ensure that there is always on the jobsite someone authorized to address safety hazards that are identified by workers or the construction manager appropriately and promptly.

3.6.2. Fire Protection (Appendix A, Section 2)

The Rule requires that contractors implement and maintain a comprehensive, multi-faceted fire safety and emergency response program that is predicated, in part, on compliance with applicable building codes and National Fire Protection Association (NFPA) codes and standards and should incorporate applicable provisions of DOE O 420.1 *Facility Safety*. The Rule at 851.23(a) explicitly adopts as requirements NFPA 70 National Electrical Code, (2005) and NFPA 70E Standard for Electrical Safety in the Workplace (2004). These two standards, and additional NFPA codes and standards that may be applicable, are available at www.nfpa.org.

Complete guidance on the development, adoption and maintenance of a fire safety and emergency response program that satisfies the provisions of the Rule can be found in DOE G 440.1-5, *Fire Safety Program for use with DOE O 420.1 and DOE O 440.1* (under revision as DOE G 420.1-3), and DOE STD-1066-1999, *Fire Protection Design Criteria*. A contractor may choose a successor version of any NFPA code and standard, DOE standard and implementation guide, if approved by the DOE Authority Having

Jurisdiction (AHJ) for fire protection. (See 3.3.4.1 of this Guide for more information about the AHJ)

Additional guidelines on certain aspects of an acceptable fire safety and emergency services program can be found on the DOE Fire Protection website, located at: <http://www.eh.doe.gov/fire/guidelines.html>.

3.6.2.1. Authority Having Jurisdiction (AHJ)

(See 3.3.4.1 for more information concerning AHJ for fire protection.)

3.6.2.2. Life Safety Code

NFPA Standard 101 *Life Safety Code* is applicable to most DOE facilities. AHJs may determine that NFPA 101A *Alternate Approaches to Life Safety* can be applied to DOE facilities where an equivalent level of life safety to that provided with NFPA 101 is needed. The AHJ also should determine the additional or modified exit requirements needed for toxic and explosive environments. The exit requirements for explosives environments should reflect the criteria contained in the DOE M 440.1-1A, *Explosives Safety Manual* (available by searching at <http://www.directives.doe.gov/>). Additional fire protection features and personnel limits should be maintained where noncompliance with some NFPA Standard 101 provisions are necessary to prevent creating serious hazards, e.g. as could occur in some containment structures. Compliance with NFPA 101 satisfies exit requirements of the applicable building code and 29 CFR 1910 life safety requirements. OSHA has a de minimis violations policy that accepts the current industry consensus standard, if the consensus standard provides personnel protection equal to or greater than the protection provided by the applicable OSHA standard. Based upon this policy, an employer who meets the requirements contained in the current NFPA 101 would be in compliance with 29 CFR 1910 life safety requirements, so long as the current version provides equal or greater protection than the OSHA standard.

3.6.2.3. Fire Watches

When applicable, fire watcher requirements in National Fire Protection Association (NFPA) 51B should be expanded to include responsibility for the safety of the welder(s) in addition to that of the facility.

3.6.3. Explosives Safety (Appendix A, Section 3)

The Rule incorporates DOE M 440.1-1A *Explosives Safety Manual*, (available by searching at <http://www.directives.doe.gov/>), Contractor Requirements Document (CRD, Attachment 2), dated 1-9-06, as mandatory. A comprehensive explosives safety program must implement and comply with all applicable requirements in the CRD. The balance of paragraph 3.6.3 of this Guide will use the term “the Manual” to refer to these requirements contained in the CRD.

The DOE Explosives Safety Committee, composed of many of DOE's experts in explosives safety, regularly updates the Manual to incorporate lessons learned and technological advances. The Rule explicitly permits the contractor to choose to use a successor version of the Manual if approved by DOE [Appendix A, section 3 (b)]. Over the last 30 years, updated Manuals have often incorporated increased efficiencies and workability in the field as a by-product of upgrading the state-of-the-art in explosive safety.

DOE O 420.1B, *Facility Safety*, dated 12-22-05 references the Manual in addressing the design of facilities:

- That contain explosives;
- Within which explosives activities are conducted; or
- That can be adversely affected by an explosives accident or detonation.

With the notable exception of onsite explosives storage and transportation of explosives or explosive assemblies, the Manual is not intended to govern routine construction or tunnel blasting.

Explosives safety requirements do not apply to cartridge-firing devices such as nail guns used in construction. Explosives safety storage requirements apply to the explosive components of cartridge-firing devices if very large quantities, as determined by a safety professional with appropriate qualifications in explosives safety, are stored.

3.6.4. Pressure Safety (Appendix A, Section 4)

The Rule requires that contractors establish safety policies and procedures to ensure that pressure systems are designed, fabricated, tested, inspected, maintained, repaired, and operated by trained and qualified personnel in accordance with applicable and sound engineering principles. Contractors should consider pressure relief devices, piping, fittings, gauges, valves, pumps, heat exchangers and associated pressure-retaining hardware to be part of pressure systems and should subject these devices and hardware to protection measures that are equivalent to codes per Appendix A, Section 4.(c) of the Rule. The Rule also references specific American Society of Mechanical Engineers (ASME) codes for pressure vessels, boilers, air receivers, and supporting piping systems. Contractors also should address hazards presented by cryogenic, pneumatic, hydraulic, steam, and vacuum systems. Vacuum systems should be addressed due to their potential for catastrophic failure in the event of backfill pressurization.

The provisions of the Rule do not supersede requirements in 10 CFR Part 830, Nuclear Safety Management and appropriate sections of the ASME Boiler and Pressure Vessel Code that more appropriately apply to nuclear reactors and other DOE nuclear facilities.

3.6.5. Firearms Safety (Appendix A, Section 5)

The Rule requires DOE contractors engaged in DOE activities involving the use of firearms to establish and implement a firearms safety program. Implementation guidance for comprehensive protective force firearms safety programs can be found within the relevant provisions of DOE M 470.4-3, *Protective Force* (available by searching at <http://www.directives.doe.gov/>). For detailed guidelines on effective firearms safety programs, refer to DOE Standard 1091-96, *Firearms Safety* (available by searching at <http://www.directives.doe.gov/>).

3.6.6. Industrial Hygiene (Appendix A, Section 6)

Consult DOE technical standard DOE-STD-6005-01 *Industrial Hygiene Practices* (available by searching at <http://www.directives.doe.gov/>) for additional guidance for complying with industrial hygiene requirements. Appendix A, section 6(a) of the Rule effectively addresses worker health risks in typical work areas and operations. Typical work areas and operations tend to be stable. Appendix A, section 6(a) of the Rule may not be sufficient for identifying worker health risks for non-routine, transient, or dynamic work operations. See section 7 of DOE-STD-6005-01 for guidance for dealing with non-routine, transient, or dynamic work areas and operations.

Title 10 CFR 850 *Chronic Beryllium Disease Prevention Program* (available at <http://www.eh.doe.gov/be/index.html>) is deemed an integral part of the worker safety and health program under part 851 (10 CFR 850.1). Specific guidance for implementing 10 CFR 850 is available in DOE G 440.1-7A *Implementation Guide for use with 10 CFR 850 Chronic Beryllium Disease Prevention Program* (available by searching at <http://www.directives.doe.gov/>).

3.6.6.1. Additional Resources.

Non-ionizing radiation (NIR):

Threshold Limit Values (TLV) for Chemical Substances and Physical Agents & Biological Exposure Indices (BEI), American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, OH. (Latest edition.) Provides good overall documentation on all aspects of NIR (microwaves; ultra-wide band, low frequency and static electric fields; lasers; and non-coherent optical radiation). It essentially adopts Institute of Electrical and Electronics Engineers (IEEE) C95.1 (for controlled area microwaves) and American National Standards Institute (ANSI) Z136.1 *Safe Use of Lasers*.

IEEE C95.2, 1999, *IEEE Standard for Radio Frequency Energy and Current-flow Symbols*, IEEE, Piscataway, NJ. This standard provides IEEE recommended practice covering usage of signs.

IEEE C95.3, 2002, *IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such*

Fields, 100 kHz - 300 GHz, IEEE, Piscataway, NJ. This is a very technical document on making field measurements and computations of radio frequency (RF) energy fields.

IEEE C95.4, 2002, *IEEE Recommended Practice for Determining Safe Distances from Radio Frequency Transmitting Antennas When Using Electric Blasting Caps During Explosive Operations*, IEEE, Piscataway, NJ. Should be used with caution and by personnel trained in these calculations. Incorrect use could result in the loss of life.

IEEE C95.6, 2002, *IEEE Standard for Safety Levels With Respect to Human Exposure to Electromagnetic Fields, 0 - 3 kHz*, IEEE, Piscataway, NJ. This is IEEE's standard on low frequency fields. ACGIH limits cover the same hazard and may be simpler to use.

IEEE C95.7, 2006, *IEEE Recommended Practice for Radio Frequency Safety Programs, 3 kHz to 300 GHz*, IEEE, Piscataway, NJ. This new standard provides good basic information on RF safety programs.

All IEEE documents can be obtained at: <http://shop.ieee.org/ieeestore/>

Laser Safety:

ANSI Z136.1-2000 *Safe Use of Lasers*, American National Standards Institute, 25 West 43rd Street, New York, NY 10036. This document is the cornerstone document of laser safety, includes exposure limits and calculations. It is the basis for the ACGIH TLVs. In some cases, the ACGIH TLV standard is more up-to-date because some of the newer laser exposure limits are still not included in Z136.1. Z136.1 provides extremely useful worked out examples.

ANSI Z136.2-1997 *Safe Use of Optical Fiber Communication Systems Utilizing Laser Diode and LED Sources*, American National Standards Institute, 25 West 43rd Street, New York, NY 10036. This standard provides information on the safety of laser-based fiber optics systems.

ANSI Z136.3-2005 *Safe Use of Lasers in Health Care Facilities*, American National Standards Institute, 25 West 43rd Street, New York, NY 10036. This standard is for Laser Safety Officers at health care facilities.

ANSI Z136.4-2005 *Recommended Practice for Laser Safety Measurements for Hazard Evaluation*, American National Standards Institute, 25 West 43rd Street, New York, NY 10036. This practice is useful for making laser measurements although the requirements can be calculated using Z 136.1 instead of making the measurements.

ANSI Z136.6-2005 *Safe Use Of Lasers Outdoors*, American National Standards Institute, 25 West 43rd Street, New York, NY 10036.

All the laser safety standards can be obtained at:
<http://webstore.ansi.org/ansidocstore/default.asp> or <http://www.laserinstitute.org>

3.6.7. Biological Safety (Appendix A, Section 7)

Contractors should consult Extension of DOE N 450.7, *The Safe Handling, Transfer, and Receipt of Biological Etiologic Agents at Department of Energy Facilities* (available by searching at <http://www.directives.doe.gov/>) for guidance on biological safety while it still is in effect. The successor Order to DOE O 440.1A (03-27-00) is expected to contain DOE's internal expectations for biological safety and when published will supersede DOE N 450.7. The requirements in these documents will not be within the scope of the Rule but may give contractors useful insight into DOE's interest in staying informed of biological etiologic agent work being undertaken at DOE sites and determining that an Institutional Biological Safety Committee is in place to provide effective review of all activities involving biological etiologic agents at DOE sites.

References for additional guidance are:

Title 42 CFR Parts 72, Interstate shipment of etiologic agents and 73, *Possession, Use, and Transfer of Select Agents and Toxins*; available at http://www.cdc.gov/od/sap/final_rule.htm

Title 7 CFR Part 331, Possession of biological agents and toxins and 9 CFR Part 121, *Possession, Use, and Transfer of Biological Agents and Toxins*, available at http://www.cdc.gov/od/sap/final_rule.htm

42 CFR Part 73 *HHS and USDA Select Agents and Toxins*, <http://www.cdc.gov/od/sap/docs/salist.pdf>

Biosafety in Microbiological and Biomedical Laboratories. CDC/NIH publication (current edition). (http://www.cdc.gov/ncidod/dvbid/Biosafety_manual_rev_1994.pdf)

NIH Guidelines for Research Involving Recombinant DNA Molecules. NIH publication MSU/1998 (current edition). (<http://www.niehs.nih.gov/odhsb/biosafe/nih/rdna-apr98.pdf>)

Title 29 CFR 1910.1030, *Bloodborne Pathogens*. (http://www.osha-slc.gov/OshStd_data/1910_1030.html)

3.6.8. Occupational Medicine (Appendix A, Section 8)

Appendix A, section 8 of the Rule establishes the elements and framework for an effective occupational medicine program. A written description of the occupational medicine program, and plans for its implementation, are part of the worker safety and health program required by 851.11(a). Part 851.11 also describes coordination that must take place in situations where more than one contractor is responsible for covered workplaces. For example, several contractors operating at a site may agree to use the medical services provided under a single contractor's occupational medicine program. General guidance for implementing an occupational medicine program is available in DOE G 440.1-4, *Contractor Occupational Medical Program Guide for use with DOE Order 440.1*.

3.6.8.1. Provide Comprehensive Occupational Medical Services [Appendix A, Section 8(a)].

Section 8(a) describes the categories of workers who must be covered by the contractor's occupational medicine program. They are: (1) workers who are employed at a covered DOE workplace and work there for more than 30 days in a 12-month period; or (2) workers who are enrolled for any length of time in a medical or exposure monitoring program. Contractors who do not employ workers fitting either description do not have to establish an occupational medicine program. All others should generate a written plan that includes, but is not be limited to, mission statements and policies and procedures that implement medical surveillance and disease management programs, case-management strategies and programs, and disaster and public health emergency strategies. The occupational medicine provider determines the content of the services. Most categories of workers will receive some level of services but the provider may determine that some categories of workers require minimal services. Authorities and responsibilities should be clearly assigned to the officials responsible for integrating and implementing the program. At sites where most occupational medicine services are obtained from a single provider, it is usual for the occupational medicine program to be integrated across the site. The need to provide aid and emergency response to the entire population of a site indicates the necessity for site-wide integration.

3.6.8.1.1. Subcontractors

For the purposes of the Rule, the definition of contractor includes subcontractors at any tier; therefore subcontractor workers must be included in a compliant occupational medicine program. Contractors and subcontractors can implement part, or all, of the program with their own staff or arrange through agreements or contracts for others to provide all or part of the program. Medical services may include all of the elements required by Appendix A, Section 8 of the Rule under one or several contracts.

3.6.8.1.2. Medical Services Provider Credentials [Appendix A, Section 8(b)]

Appendix A, section 8(b) requires that in all cases, a licensed physician will have the authority to direct medical services. In many instances, the official responsible for coordinating, approving and directing occupational medicine services is the site occupational medicine director. When multiple medical providers are involved, particularly when determining the work-relatedness of illnesses and injuries, the authorities and responsibilities of the medical providers should be clearly stated in the occupational medicine plan to ensure that injury and medical data are collected, integrated, and appropriately reported. For example, the plan implementing the occupational medicine program should ensure that essential information for the Computerized Accident/Incident Reporting System (CAIRS); total recordable cases (TRC); and days away from work, days of restricted work activity or job transfer (DART) are collected and reported as required by DOE M 231.1-1A *Environment, Safety and Health Reporting Manual*.

3.6.8.2. Medical Services Provider Staff Credentials [Appendix A, Section 8(c)]

Appendix A, Section 8(c) requires that the personnel providing health services be licensed, registered, or certified as required by federal or state law where employed. Other sources of such credentials include, but are not limited to the following:

- American College of Occupational and Environmental Medicine; American Board for Occupational Health Nurses;
- American Academy of Nurse Practitioners;
- American Academy of Physician Assistants;
- American Board of Professional Psychologists;
- Employee Assistance Certification Commission;
- American Counseling Association with National Board Certified Counselors Inc.- except for licensure requirements in California and Nevada.

3.6.8.3. Information Provided to Medical Services Provider and Interaction with Worker Protection Teams [Appendix A, Sections 8(d) and (e)]

Appendix A, Sections 8(d) and (e) require contractors to provide access to information about site hazards and employee exposures and any changes in them so that medical services can be offered as appropriate. The medical service provider should become familiar with the types of data available and make requests to the appropriate sources of the data. The occupational medicine provider staff members must avail themselves of opportunities to visit workplaces and interact with employees and other worker safety and health staff members to the extent needed to plan and implement appropriate services.

3.6.8.4. Medical Records [Appendix A, Section 8(f)]

Appendix A, Section 8(f) of the Rule requires contractors to develop and maintain employee medical records, and to maintain those records in accordance with Executive Order 13335 *Incentives for the Use of Health Information Technology and Establishing the Position of the National Health Information Technology Coordinator* (Federal Register: April 30, 2004 (Volume 69, Number 84), Page 24057-24061, <http://www.archives.gov/federal-register/executive-orders/2004.html>). This Executive Order establishes a National Health Information Technology Coordinator whose responsibility is, to the extent permitted by law, to develop, maintain, and direct the implementation of a strategic plan to guide the nationwide implementation of interoperable health information technology in both the public and private health care sectors that will reduce medical errors, improve quality, and produce greater value for health care expenditures. It does not require, but strongly encourages, the use of electronic occupational medical records. Occupational medical records should be maintained in standardized electronic formats as much as possible. Several standards for

electronic medical records are available and others are under development (see additional resources below.)

3.2.2.1.1 Privacy

Section 8(f)(2) stipulates that access to medical records must be provided in accordance DOE regulations implementing the Privacy Act. Regulations for DOE System 33 Personnel Medical Records and DOE System 34 Employee Assistance Program (EAP) Records, were last updated in the June 30, 2003 Federal Register (68 FR 38791.)

3.6.8.5. Content of Medical Services [Appendix A, Section 8(g)]

Appendix A, Section 8(g) requires the medical service provider to determine the content of worker health evaluations. Although the contractor's occupational medicine plan must address its coverage of all workers described by section 8 (a) of the Rule, the language in section 8(g) specifies that the contents and necessity of services and health evaluations to be offered to these workers are determined by the medical provider. For example, administrative personnel who work solely in an office setting may not ordinarily be offered hazard-based medical monitoring evaluations, but would be included in emergency care, illness and injury management, and health promotion programs. Additionally, there are specific standards that require medical evaluations for workers regardless of the length of time they are employed. For example, the OSHA standard 29 CFR 1910.134 "Respiratory Protection" requires a medical evaluation of any employee required to wear a respirator. There may be some categories of workers for whom no health evaluations are deemed necessary. Section 8(g)(2) states "the following health evaluations must be conducted when determined necessary by the occupational medicine provider for the purposes of providing initial and continuing assessment of employee fitness for duty." The term "fitness for duty" refers to fitness in both the general sense that employees can perform their job safely and the specific sense that they meet the requirements of specific programs. Fitness for duty evaluations are used to determine whether employees are able to perform their job functions without creating an undo hazard to themselves or others. These include examinations to determine whether the employee meets specific medical and psychological qualifications required by federal regulations or other standards.

3.6.8.5.1. Types of Exams

Paragraph 8(g)(2)(i) describes what is commonly called a pre-placement medical examination, which is aimed at assuring employees are able to perform essential job functions prior to their assignment. Paragraph 8(g)(2)(ii) describes periodic evaluations commonly called medical monitoring, which are aimed at early detection of the adverse effects of work or of continuing medical qualification to perform work. Paragraph 8(g)(2)(iii) describes medical evaluations provided when patients seek aid or after receiving emergency aid, which are aimed at assuring the employees receive appropriate care, whether they can return to work, and if there are work-related causes that require investigation. There is some overlap with section 8(g)(2)(iv) which describes what is commonly called a return-to-work evaluation. These evaluations are usually provided after an employee has been absent for some period. They are also diagnostic in nature and

aimed at supporting the management of illnesses and injuries. Paragraph 8(g)(2)(v) describes medical evaluations commonly called termination examinations, which are aimed at determining whether employees have suffered any ill effects as a result of their work and creating a record of health condition at the time of separation that can help physicians determine the work relatedness of health problems that develop in the future.

It is common for occupational medicine programs to provide additional services not required by the Rule. These might include evaluations associated with traveler health and infectious disease control, health promotion and preventative programs, and other medical services where overall cost efficiency justifies their provision.

3.6.8.6. Rehabilitation [Appendix A, Section 8(h)]

Appendix A, Section 8(h) requires the medical provider to participate in the management of employees with continuing health problems. Implementation plans should make clear assignments of authorities and responsibilities of medical providers to monitor the rehabilitation of injured and ill workers, assure workers are not assigned task that create undo risk, and recommend workplace accommodations that facilitate return to work. The medical provider must have access to information and knowledge of the employee's health condition and working conditions to perform this required function. The Americans with Disabilities Act provides policy on placement decisions.

3.6.8.7. Feedback Medical Results to Mitigate Hazards [Appendix A, Section 8(i)]

Appendix A, Section 8(i) requires that medical providers communicate results indicating that an adverse health effect may be due to work to those who are able to investigate and correct unsafe working conditions. These are usually single events, such as an unusual medical monitoring result, but could also be an unusual pattern of findings in a group. Access to personal and medical information, such as that which may be needed to investigate causes of injury or illness is subject to requirements of the Privacy Act of 1974 and the Health Insurance Portability and Accountability Act. Implementation plans should include assignments of authorities and responsibilities for the routine collection, analysis and communication of information on potentially work-related health effects to management and others who need to know.

3.6.8.8. Manage Preventable Morbidity and Mortality [Appendix A, Section 8(j)]

Appendix A, Section 8(j) requires the medical provider to identify and manage the principal preventable causes of premature morbidity and mortality affecting worker health and productivity. The medical provider should seek to manage causes identified by available evidence, published medical studies, demonstration projects at other institutions, or internal analyses, indicating that management efforts are likely to be cost-effective. Contractors must work with their health, disability, and other insurance plans to provide requested information or access to the information (de-identified as necessary) to the occupational medicine provider in order to facilitate this process. Upon request, the contractor should provide the occupational medicine provider the means to collect and

analyze data for this purpose from voluntary employee surveys, disability reports, return-to-work data and other available sources.

3.6.8.9. Assistance and Wellness [Appendix A, Sections 8(k)(1)-(3)]

Appendix A, Section 8, k (1)-(4) require the occupational medicine services provider to review and approve the medical and behavioral aspects of several types of contractor-supported employee assistance or health programs. This is to ensure that the provision of these medical and psychological services are supervised by licensed personnel and that pertinent medical information resulting from these DOE-funded services become part of the worker's medical record [Appendix A, Section 8(f)]. Since contractors and subcontractors can implement part, or all, of their occupational medicine program with their own staff or arrange for others to provide program services, it is important that the implementation plan for the occupational medicine program assign authorities and responsibilities to ensure that integration of such services and information routinely takes place. At some sites, the medical services provider assigned these responsibilities is the site occupational medicine director, who must be licensed in accordance with the requirements of Appendix A, Section 8(b).

3.6.8.10. Immunizations and Biohazards [Appendix A, Section 8(k)(4)]

Appendix A, Section 8, k (4) states "the occupational medicine services provider must review the medical aspects of immunization programs, blood-borne pathogens programs, and biohazardous waste programs to evaluate their conformance to applicable guidelines." The purpose of this requirement is to ensure that the occupational medical providers have knowledge of the identity of employees at elevated risk for infections or other biohazards (i.e. strong allergens) so that workplace controls can be evaluated, recommended immunizations can be provided, and emergency care can be planned. Biohazardous waste includes blood, body fluids, and other potentially infectious materials (listed by OSHA at <http://www.osha-slc.gov/SLTC/etools/hospital/hazards/univprec/univ.html>) and may include waste from a biological research program. The occupational medicine program should have a role determining if a biohazard exists and in managing that risk.

3.6.8.11. Emergency Preparedness [Appendix A, Section 8(k)(5)]

Appendix A, Section 8, k(5) requires the occupational medicine services provider to develop and periodically review site emergency and disaster preparedness plans and integrate their responses with nearby communities.

3.6.8.12. Additional Resources

3.6.8.12.1. Standards for Electronic Medical Records

- Health Level 7 (HL7) messaging standards to ensure that each federal agency can share information that will improve coordinated care for patients such as entries of orders, scheduling appointments and tests and better coordination of the admittance, discharge and transfer of patients.

- National Council on Prescription Drug Programs (NCDPC) standards for ordering drugs from retail pharmacies to standardize information between health care providers and the pharmacies. These standards already have been adopted under the Health Insurance Portability and Accountability Act (HIPAA) of 1996, which ensures that parts of the three federal departments that aren't covered by HIPAA will also use the same standards.
- The Institute of Electrical and Electronics Engineers 1073 (IEEE1073) series of standards that allow for health care providers to plug medical devices into information and computer systems that allow health care providers to monitor information from an intensive care unit or through telephonic remote health services on Indian reservations, and in other circumstances.
- Digital Imaging Communications in Medicine (DICOM) standards that enable image and associated diagnostic information retrieval and transfer from various manufacturers' devices and medical staff workstations.
- Laboratory Logical Observation Identifier name Codes (LOINC) to standardize the electronic exchange of clinical laboratory results.
- Health Level 7 (HL7) vocabulary standards for demographic information, units of measure, immunizations, and clinical encounters, and HL7's Clinical Document Architecture standard for text based reports. (Five standards)
- The College of American Pathologists Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT) for laboratory result contents, non-laboratory interventions and procedures, anatomy, diagnosis and problems, and nursing. HHS is making SNOMED-CT available for use in the U.S. at no charge to users. (Five standards)
- Laboratory Logical Observation Identifier Name Codes (LOINC) to standardize the electronic exchange of laboratory test orders and drug label section headers. (One standard.)
- The Health Insurance Portability and Accountability Act (HIPAA) transactions and code sets for electronic exchange of health related information to perform billing or administrative functions. These are the same standards now required under HIPAA. (One standard.)
- A set of federal terminologies related to medications, including the Food and Drug Administration's names and codes for ingredients, manufactured dosage forms, drug products and medication packages, the National Library of Medicine's RxNORM for describing clinical drugs, and the Veterans Administration's National Drug File Reference Terminology (NDF-RT) for specific drug classifications. (One standard.)

- The Human Gene Nomenclature (HUGN) for exchanging information regarding the role of genes in biomedical research in the federal health sector. (One standard.)
- The Environmental Protection Agency's Substance Registry System for non-medicinal chemicals of importance to health care. (One standard.)
- Chronic Beryllium Disease Prevention
- Medical screening test results and other relevant data for beryllium-associated workers must be transmitted to DOE in electronic format (10 CFR 850.39(h) and should be provided in accordance with DOE-STD-1187-2005, Beryllium-Associated Worker Registry Data Collection and Management Guidance (<http://www.eh.doe.gov/techstds/standard/recappts.html>).
- DOE-SPEC-1142-2001 *Beryllium Lymphocyte Proliferation Testing* (BeLPT), April 2001 provides specifications that can be used for the purchase of BeLPT services.

3.6.8.12.2. Psychological Services

- Standards for employee assistance programs are included in Specific Service Areas Standards available from the Council on Accreditation (<http://www.coanet.org/front3/page.cfm?sect=55&cont=4191>).
- DOE O 350.1, Contractor Human Resource Management Programs, Chapter IX, Attachment 1, Contract Requirements Document, Employee Assistance Programs.

3.6.8.12.3. Occupational Medicine Services

- The American College of Occupational and Environmental Medicine publishes statements and guidelines on the practice of occupational medicine. See <http://www.acoem.org/> for more information.
- Applications Manual for the Revised NIOSH Lifting Equation, January, 1994. DHHS (NIOSH) Publication No. 94-110

3.6.9. Motor vehicle safety (Appendix A, Section 9)

The U.S. Department of Labor, OSHA, provides guidance on motor vehicle safety policies and programs, applicable standards, hazard recognition and control, and additional information at <http://www.osha.gov/SLTC/motorvehiclesafety/index.html>. States have policies and regulations that may apply to sites that include state roads.

3.6.10. Electrical safety (Appendix A, Section 10)

The Rule requires all contractors to implement a comprehensive electrical safety program appropriate for the activities at their site. The Rule further specifies that the contractor's

program must meet the applicable electrical safety codes and standards referenced in 851.23. Specifically, those codes and standards include the applicable electrical safety regulations promulgated by OSHA such as Subpart S of 29 CFR 1910 for general industry operations and Subpart K of 29 CFR 1926 for construction operations and NFPA electrical safety standards: NFPA 70 (*National Electrical Code*, 2005) and NFPA 70E (*Electrical Safety in the Workplace*, 2004).

The purpose of the electrical safety program is to provide a sound and effective approach to electrical safety to ensure the safety and well-being of all DOE contractor and subcontractor employees, enhance electrical safety awareness and mitigate potential electrical hazards to employees, the public, and the environment associated with the use of electrical energy within any DOE site or facility.

Electrical safety guidance is available in DOE's *Electrical Safety Handbook* (DOE-HDBK-1092-2004, available by searching at <http://www.directives.doe.gov/>). That handbook also provides an example of an acceptable electrical safety program for DOE contractors in the Handbook's Appendix A, A Model Electrical Safety Program (MESP). As illustrated in this MESP, the main elements of an effective electrical safety program include the following six (6) components:

- Management commitment to the program;
- Effective training (including baseline training) for all degrees of hazard;
- Effective and complete safe electrical work practices;
- Documentation for all activities;
- Electrical safety engineering support; and
- Oversight for the electrical safety program.

DOE contractors should refer to the MESP described in the DOE Handbook (1092-2004) for more detailed guidance and suggestions on program content such as purpose, scope, and ownership; performance objectives; responsibilities, authorities, and interfaces; definitions; and implementation procedures. The Handbook also includes references for more in-depth guidance.

DOE contractors should note that the MESP described in the Handbook is intended as guidance to assist contractors in formulating their own programs and does not represent requirements. Contractors must evaluate their own worksites, operations, and facilities and must develop an appropriate electrical safety program consistent with their specific circumstances and within the framework of their overarching health and safety program. For instance, in determining the need for, and role of, an electrical safety committee, DOE contractors may consider the MESP's suggested provisions for the committee's roles, responsibilities, membership, and charter, but must also consider their current

health and safety management structure as well as existing collective bargaining agreements in place at their facility.

3.6.10.1. Authority Having Jurisdiction (AHJ) for electrical safety

(See 3.3.4.1 for more information concerning AHJ for electrical safety.)

3.6.10.2. Exemptions and waivers of electrical safety requirements

Section 5.6.3 of the MESP discusses suggested provisions and procedures for the content and review of requests for exemptions and waivers from codes and regulations. As discussed in paragraph 3.3.4.1 of this Guide above, the AHJ has the authority to waive specific requirements of NFPA 70 or permit the use of alternate methods where such methods provide equivalent protection (i.e., equivalencies) consistent with the AHJ provisions of these codes. Deviations from the letter of the electrical safety requirements of the OSHA standards that do not incorporate NFPA 70, however, are only permitted if approved through the formal variance process outlined in subpart D of the rule. See paragraph 3.3.4.1 of this Guide for a more detailed discussion of equivalencies.

3.6.11. Nanotechnology Safety (Appendix A, Section 11)

This section of the Rule is reserved.

To understand DOE's objectives for nanotechnology safety, contractors should consult:

P 456.1, *Secretarial Policy Statement On Nanoscale Safety*, available at:
<http://www.directives.doe.gov/pdfs/doe/doetext/neword/456/p4561.html>; and

Safety Bulletin 2005-06: Good Practices for Handling Nanomaterials, available at
<http://www.eh.doe.gov/paa/bulletins.html>.

3.6.11.1. Additional Resources

DOE Industrial Hygiene/Occupational Safety Special Interest Group,
www.ora.gov/ihos/Nanotechnology/nanotech_home.html

NIOSH, *Topic Page*, <http://www.cdc.gov/niosh/topics/ctrlbanding/>;

HSE, *COSSH Essentials*, <http://www.coshh-essentials.org.uk/>;

ILO *SafeWork*,
http://www.ilo.org/public/english/protection/safework/ctrl_banding/index.htm; and

European Union, *R-phrases*,
http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=32001L0059&model=guichett.

3.6.12. Workplace Violence Prevention (Appendix A, Section 12)

Reserved.

3.7. Appendix B to Part 851—General Statement of Enforcement Policy

See Office of Enforcement's Enforcement Program Plan, available from a link at <http://www.eh.doe.gov/enforce/index.html>.

EXAMPLE A

WORKER SAFETY AND HEALTH PROGRAM EMBEDDED IN DOE INTEGRATED SAFETY MANAGEMENT SYSTEM STRUCTURE AT A DOE NUCLEAR SITE

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A.1. BACKGROUND

The Rule at 851.11(a)(3) requires that the contractor's written worker safety and health program describe how the contractor will integrate all requirements of the Rule with other related site-specific worker protection activities and with their Integrated Safety Management Systems (ISMS). A straight-forward approach to meeting that requirement is to include the elements of the worker safety and health program in the site's ISMS. Users of Example A to this Guide will find that the worker safety and health program is only one of the many integrated programs and activities necessary for safe and effective operations. Example A Guide describes a DOE nuclear site's ISMS that includes a worker safety and health program. Only the elements of the worker safety and health program presented by this Example that address requirements in the Rule should be considered components of the worker safety and health program required by the Rule. Table 1 provides a crosswalk between the sections of the Rule, the Example worker safety and health program, and the body of this Guide for the Rule. Table 1 is one method that can be used to indicate which elements of the ISMS make up the worker safety and health program required by the Rule. Other methods may be acceptable for delineating the ISMS components that are applicable to and enforceable under the Rule.

The Department of Energy (DOE), in response to the statutory mandate of section 3173 of the Bob Stump National Defense Authorization Act (NDAA) for Fiscal Year 2003 established 10 CFR 851 *Worker Safety and Health* (the Rule) to govern contractor activities at DOE sites. This Rule codifies and enhances the worker protection program in operation when the NDAA was enacted. It was published in the Federal Register on February 9, 2006 (Federal Register / Vol. 71, No. 27 / Thursday, February 9, 2006).

Prior to the establishing 10 CFR 851, DOE, in response to DNFSB Recommendation 95-2, committed to implementing an Integrated Safety Management System (ISMS) across the complex by issuing an Implementation Plan in April 1996 and, subsequently, DOE Policy P 450.4, *Safety Management System Policy*, (available by searching on <http://www.directives.doe.gov/>) in October 1996. That Policy, along with the "Integration of Environment, Health and Safety into Work Planning and Execution" clause set forth in the DOE procurement regulations (see 48 CFR 952.223-71 and 970.5223-1), requires DOE contractors to establish an integrated safety management system (ISMS).. Those procurement regulations required contractors to follow ISMS objectives, guiding principles, and functions, and to describe their approach for implementing and tailoring an ISMS to their site/facility or activities.

The Rule at 851.11(a)(3) requires contractors to provide a written worker safety and health program that describes how the contractor will integrate all requirements of the Rule with other related site-specific worker protection activities and with their Integrated Safety Management Systems (ISMS). Part 851.13(b) of the Rule clarifies that contractors who have implemented a written worker safety and health program, ISM description, or Work Smart Standards process prior to the effective date of the final Rule may continue to implement that program/system so long as it satisfies the requirements of the Rule. Hence, DOE believes that the integration of these existing programs with the worker safety and health program required by the Rule will eliminate duplication of effort and

limit any additional burden associated with implementing the Rule. In addition, DOE recognizes that sites already integrate their safety and health program with the many other programs and activities necessary for safe and effective operations.

The ISMS described in Example A is a standards-based system consistent with the worker safety and health policies, rules, orders, manuals, and standards (hereinafter referred to as standards) that are applicable to DOE sites. The implementation of these standards enables the site to conduct work in a manner that ensures protection of its workers.

In summary, an ISMS program description containing all the features that are needed to comply with the requirements of the Rule is an ideal structure within which to embed the worker safety and health program. Example A was derived from a DOE site's successful ISMS program description that incorporates a complete worker safety and health program.

A.2. PURPOSE

This example describes an Integrated Safety Management System (ISMS) that ensures that safety is integrated into work performed at the site and incorporates a complete worker safety and health program that is compliant with the Rule. Part 851.11(c)(2) of the Rule requires this written safety and health program to be updated and submitted to DOE for approval annually. This is accomplished within the ISMS approval procedure. For purposes of this example, safety includes all aspects of safety and health management. This document and the ISMS described herein serve to implement DOE P 450.4 and the revised Department of Energy DEAR Clause 970.5223-1, *Integration of Environment, Safety, and Health Into Work Planning and Execution*, as well as to implement 10 CFR 851 *Worker Safety and Health Program*.

This ISMS is a dynamic system incorporating the concept of continuous improvement that will support worker safety as the work changes to meet new or revised missions of the Department of Energy.

The basic structure of ISMS (i.e., the Core Functions and Guiding Principles) is the overarching system used to manage the conduct of work. From time to time, the ISMS is enhanced and supported by the introduction of new and improved standards and improved processes. Examples of such emergent standards and improved processes include the Voluntary Protection Program (VPP- an OSHA/DOE initiative for recognizing worker safety excellence), and Behavior-Based Safety (BBS). The ISMS previously incorporated elements of the enhanced work planning (EWP) process, a DOE initiative that assigns high value to worker involvement in the planning of non-routine tasks/activities. Since EWP has become incorporated into ISM across the DOE complex, it is no longer considered a separate process. Later sections of this ISMS Description explain how these standards and processes support implementation of the ISMS.

Table 1. Crosswalk between Sections of the Rule, Example A Program, and Implementation Guide

| Table 1. Crosswalk between Sections of the Rule, Example A Program, and Implementation Guide | | | | |
|---|---|--|---|--|
| Rule Section | | Example A Program | | Paragraph in Body of Implementation Guide |
| Section Number | Section Subject | Example A Program Paragraph | Example A Program Bibliography--Management Policies (MP), Charters, Procedure Manuals (PM), Management Requirements and Procedures (MRPs), Source and Compliance Documents (SCD) in | |
| (Subpart C) | Specific Requirements | | | 3.3 |
| | Management responsibilities and worker rights and responsibilities. | | | 3.3.1 |
| (851.20(a)) | Management responsibilities | A.4(b)(1), A.4(e), A.5(c)(1) | | 3.3.1.1 |
| (851.20(a)(1)) | Policy, goals, and objectives. | A.4(a), A.5, A.5(a), A.5(b) Function 5, A.5(d) | MP 1.2 Management Policies, Requirements, and Procedure System, MP 4.7 Occupational Safety Policy, MP 5.5 Site and Facilities Management, Charter 6.11 Facility managers Forum (FMF), Charter 6.20 Safety and Health Review Committee, Charter 6.25 Chemical Management Committee | 3.3.1.1.1 |
| (851.20(a)(2)) | Qualified staff. | A.4(b)(2), A.5(c)(3) | PM-4B Training and Qualification Program Manual | 3.3.1.1.2 |
| (851.20(a)(3)) | Accountability | A.4(b)(3), A.5(c)(2) | | 3.3.1.1.3 |
| (851.20(a)(4)) | Employee involvement. | A.5(d) | MP 1.11 Open Communication, MP 4.25 Behavior Based Safety (BBS), PM-1B MRP 4.19 Requirements for Facility Operations Safety Committees, PM-8Q Employee Safety Manual | 3.3.1.1.4 |
| (851.20(a)(5)) | Access to information | | PM-8Q Employee Safety Manual | 3.3.1.1.5 |

| Table 1. Crosswalk between Sections of the Rule, Example A Program, and Implementation Guide | | | | |
|---|--|--------------------------|--|--|
| Rule Section | | Example A Program | | Paragraph in Body of Implementation Guide |
| (851.20(a)(6)) | Report events and hazards. | | PM-8Q Employee Safety Manual | 3.3.1.1.6 |
| (851.20(a)(7)) | Prompt response to reports. | | PM-8Q Employee Safety Manual | 3.3.1.1.7 |
| | | | | |
| (851.20(a)(8)) | Regular communications. | | PM-8Q Employee Safety Manual | 3.3.1.1.8 |
| (851.20(a)(9)) | Stop work authority. | | PM-8Q Employee Safety Manual | 3.3.1.1.9 |
| (851.20(a)(10)) | Inform workers of rights. | | PM-8Q Employee Safety Manual | 3.3.1.1.10 |
| (851.20(b)) | Worker rights and responsibilities. | | PM-8Q Employee Safety Manual | 3.3.1.2 |
| (851.20(b)(1)) | Participate on official time. | | PM-8Q Employee Safety Manual | 3.3.1.2.1 |
| (851.20(b)(2)) | Access to information. | | PM-8Q Employee Safety Manual | 3.3.1.2.2 |
| (851.20(b)(3)) | Notification of monitoring results. | | PM-8Q Employee Safety Manual | 3.3.1.2.3 |
| (851.20(b)(4)) | Observe monitoring. | | PM-8Q Employee Safety Manual | 3.3.1.2.4 |
| (851.20(b)(5)) | Accompany inspections. | | PM-8Q Employee Safety Manual | 3.3.1.2.5 |
| (851.20(b)(6)) | Results of inspections and investigations. | | PM-8Q Employee Safety Manual | 3.3.1.2.6 |
| (851.20(b)(7)) | Express concerns. | | MP1.11 Open Communication, PM-1B, MRP 1.06 Employee Concerns Program (ECP) | 3.3.1.2.7 |
| (851.20(b)(8)) | Decline to perform in imminent risk. | | PM-8Q Employee Safety Manual | 3.3.1.2.8 |
| (851.20(b)(9)) | Stop work. | | PM-8Q Employee Safety Manual | 3.3.1.2.9 |

| Table 1. Crosswalk between Sections of the Rule, Example A Program, and Implementation Guide | | | | |
|---|--|---|---|--|
| Rule Section | | Example A Program | | Paragraph in Body of Implementation Guide |
| | Hazard identification and assessment. | | | 3.3.2 |
| (851.21)(a) | Identify and assess risks. | A.4(c)(1), A.4(c)(2), A.5(b) Function 1 | Charter 6.33 Authorization Basis Steering Committee (ABSC), PM-11Q Facility Safety Document Manual, SCD-11 Consolidated Hazard Analysis Process (CHAP) Manual | 3.3.2.1 |
| (851.21(a)(1)) | Assess workers exposures. | | PM-4Q Industrial Hygiene Manual | 3.3.2.1.1 |
| (851.21(a)(2)) | Document hazard assessment | | PM-4Q Industrial Hygiene Manual | 3.3.2.1.2 |
| (851.21(a)(3)) | Record results. | | PM-4Q Industrial Hygiene Manual | 3.3.2.1.3 |
| (851.21(a)(4)) | Analyze designs for potential hazards. | | PM-E7 Conduct of Engineering and Technical Support | 3.3.2.1.4 |
| (851.21(a)(5)) | Evaluate operations, procedures, and facilities. | | SCD-11 Consolidated Hazard Analysis Process (CHAP) Manual | 3.3.2.1.5 |
| (851.21(a)(6)) | Job activity-level hazard analysis. | | SCD-11 Consolidated Hazard Analysis Process (CHAP) Manual, PM-8Q Employee Safety Manual | 3.3.2.1.6 |
| (851.21(a)(7)) | Review safety and health experience. | | PM-1B MRP 4.14 Lessons Learned Program, PM-9B Site Item Reportability and Issue Management | 3.3.2.1.7 |
| (851.21(a)(8)) | Consider other hazards | | SCD-11 Consolidated Hazard Analysis Process (CHAP) Manual | |
| (851.21(b)) | Closure facilities hazard identification | | | 3.3.2.2 |
| (851.21(c)) | Hazard identification schedule | | | 3.3.2.3 |

| Table 1. Crosswalk between Sections of the Rule, Example A Program, and Implementation Guide | | | | |
|---|--|--|---|--|
| Rule Section | | Example A Program | | Paragraph in Body of Implementation Guide |
| (851.22) | Hazard prevention and abatement | | | 3.3.3 |
| (851.22(a)) | Hazard prevention and abatement process. | A.4(b)(6), A.4(b)(7), A.4(c)(3), A.5(b) Function 1, A.5(b) Function 2, A.5(c)(6), A.5(c)(6), A.5(c)(7) | MP 4.1 Environmental Assurance, MP 5.7 Configuration Management, MP 5.2O Maintenance Management, MP 5.27 Engineering and Construction Subcontracting, MP 5.35 Corrective Action Program, PM-1B MRP 4.03 Site Remote Worker Notification, PM-1B MRP 4.21 Problem Identification and Resolution Process, PM-1B MRP 4.23 Site Tracking, Analysis, and Reporting (STAR) | 3.3.3.1 |
| (851.22(a)(1)) | During design or procedure development. | | MP 4.1 Environmental Assurance, MP 5.36 Chemical Management, PM-E7 Conduct of Engineering and Technical Support | 3.3.3.1.1 |
| (851.22(a)(2)) | Existing hazards. | A.4(b)(6) | MP 4.1 Environmental Assurance, MP 5.7 Configuration Management, MP 5.2O Maintenance Management, MP 5.27 Engineering and Construction Subcontracting, MP 5.35 Corrective Action Program, PM-1B MRP 4.03 Site Remote Worker Notification, PM-1B MRP 4.21 Problem, PM-1Y Conduct of Maintenance | 3.3.3.1.2 |
| (851.22(b)) | Hierarchy of controls. | A.4(c)(3) | | 3.3.3.2 |
| (851.22(b)(1)) | Substitution. | | MP 4.15 Industrial Hygiene | 3.3.3.2.1 |
| (851.22(b)(2)) | Engineering. | | MP 4.15 Industrial Hygiene | 3.3.3.2.2 |
| (851.22(b)(3)) | Work practices and administrative. | | MP 4.15 Industrial Hygiene | 3.3.3.2.3 |
| (851.22(b)(4)) | Personal protective equipment. | | MP 4.15 Industrial Hygiene | 3.3.3.2.4 |

| Table 1. Crosswalk between Sections of the Rule, Example A Program, and Implementation Guide | | | | |
|---|---|---|---|--|
| Rule Section | | Example A Program | | Paragraph in Body of Implementation Guide |
| (851.22(c)) | Purchasing equipment, products, and services. | | MP 3.3 Procurement and Materials Management, MP 5.36 Chemical Management, Procedure Manual 7B Procurement Management, PM-13B Chemical Management Manual | 3.3.3.3 |
| (851.23) | Safety and health standards | A.4(b)(5), A.4(d), A.4(f), A.5(b) Function 3, A.5(c)(5) | Charter 6.13 Regulatory Compliance Committee (RCC) | 3.3.4 |
| (851.24) | Functional areas. | | | 3.3.5 |
| (851.25) | Training and information. | A.4(f) | MP 1.18 Employee Training, Charter 6.28 Training managers Committee (TMC) | 3.3.6 |
| (851.26) | Recordkeeping and reporting | A.5(b) Function 5 | PM-1B MRP 3.31 Records Management | 3.3.7 |
| (851.26(a)) | Hazard Abatement Tracking | A.5(b) Function 5 | MP 3.32 Earned Value Management System (EVMS), Charter 6.11 Facility managers Forum (FMF), PM-1B MRP 4.14 Lessons Learned Program, PM-9B Site Item Reportability and Issue Management | 3.3.7.1 |
| (851.26(b)) | Reporting and Investigation | A.5(b) Function 5 | PM-1B MRP 4.14 Lessons Learned Program, PM-9B Site Item Reportability and Issue Management, PM-1B MRP 4.21 Problem Identification and Resolution Process, PM-1B MRP 4.23 Site Tracking, Analysis, and Reporting (STAR), | 3.3.7.2 |
| (851.27) | Reference sources | | | 3.3.8 |
| Appendix A | | | | |
| 1. | Construction Safety | | PM-E11 Conduct of Project Management and Control, PM-1E6 Construction Management Department Manual | 3.6.1 |

| Table 1. Crosswalk between Sections of the Rule, Example A Program, and Implementation Guide | | | | |
|---|--|--------------------------|---|--|
| Rule Section | | Example A Program | | Paragraph in Body of Implementation Guide |
| 2. | Fire Protection | | MP 4.16 Fire Protection, Charter 6.8 Site Fire Protection Committee (SFPC), PM-2Q Fire Protection Program, PM-6Q Site Emergency Plan Management Program Procedures, SCD-7 Site Emergency Plan | 3.6.2 |
| 3. | Explosives Safety | | PM-8Q Employee Safety Manual | 3.6.3 |
| 4. | Pressure Safety | | PM-8Q Employee Safety Manual | 3.6.4 |
| 5. | Firearms Safety | | PM-8Q Employee Safety Manual | 3.6.5 |
| 6. | Industrial Hygiene | | MP 4.15 Industrial Hygiene, MP 5.36 Chemical Management, PM-13B Chemical Management Manual, PM-4Q Industrial Hygiene Manual | 3.6.6 |
| 7. | Biological Safety | | No biological activities on this site | 3.6.7 |
| 8. | Occupational Medicine | | MP 4.3 Medical Programs | 3.6.8 |
| 9. | Motor Vehicle Safety | | MP 3.6 Transportation, PM-8Q Employee Safety Manual | 3.6.9 |
| 10. | Electrical Safety | | PM-8Q Employee Safety Manual, PM-18Q Safe Electrical Practices and Procedures | 3.6.10 |
| 11. | Nanotechnology Safety-Reserved | | Reserved | 3.6.11 |
| 12. | Workplace Violence Prevention-Reserved | | MP 2.19 Workplace Violence Policy | 3.6.12 |

A.3. SCOPE

The ISMS described herein applies to work performed by the contractor and subcontractors. If subcontracted work is judged sufficiently complex and/or hazardous, the subcontractor may be required to have and document its own safety management system that is compatible with the contractor's ISMS.

A.4. INTEGRATED SAFETY MANAGEMENT SYSTEM OVERVIEW

The DOE P 450.4, *Safety Management System Policy*, dated , subdivides the concept of the ISMS into six primary components: objective, principles, functions, mechanisms, responsibilities, and implementation.

MP 1.22, *Integrated Safety Management System (ISMS)*, adopts these components as follows:

(a) Objective.

Integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. In other words, do work safely.

(b) Principles.

- 1) **Line Management Responsibility for Safety:** Line management is responsible for the protection of the public, the workers, and the environment.
- 2) **Clear Roles and Responsibilities:** Clear and unambiguous lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels within the company and its subcontractors.
- 3) **Competence Commensurate with Responsibilities:** Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.
- 4) **Balanced Priorities:** 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.
- 5) **Identification of Safety Standards and Requirements:** Before work is performed, the associated hazards are evaluated and an agreed-upon set of safety standards and requirements are established which, if properly implemented, provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.

- 6) Hazard Controls Tailored to Work Being Performed: Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and the associated hazards.
- 7) Operations Authorization: The conditions and requirements to be satisfied for operations to be initiated and conducted are clearly established and agreed-upon.

(c) **Functions.**

- 1) Define Scope of Work
- 2) Analyze Hazards
- 3) Develop/Implement Controls
- 4) Perform Work
- 5) Feedback/Improvement

Figure 1 depicts the Safety Management Functions and sub-functions. Although arrows indicate a general direction, these are not independent functions. They are a linked, interdependent collection of activities that may occur simultaneously. Outcomes during the accomplishment of one function may affect other functions and potentially the entire system.

Additionally, the core safety management functions are integrated vertically throughout all levels (i.e. site, facility, and task-level activity) of the organizations as shown by the vertical arrows in **Figure 2**.

The objective, principles, and functions are established and provided by the DOE and are universally applicable to all activities and operations at this site. This ISMS is tailored to the work and organizational structure unique to the contractor. The ISMS provides:

- Mechanisms for doing work safely;
- Unambiguous assignment of responsibilities; and
- Implementation of the objective, principles, and functions

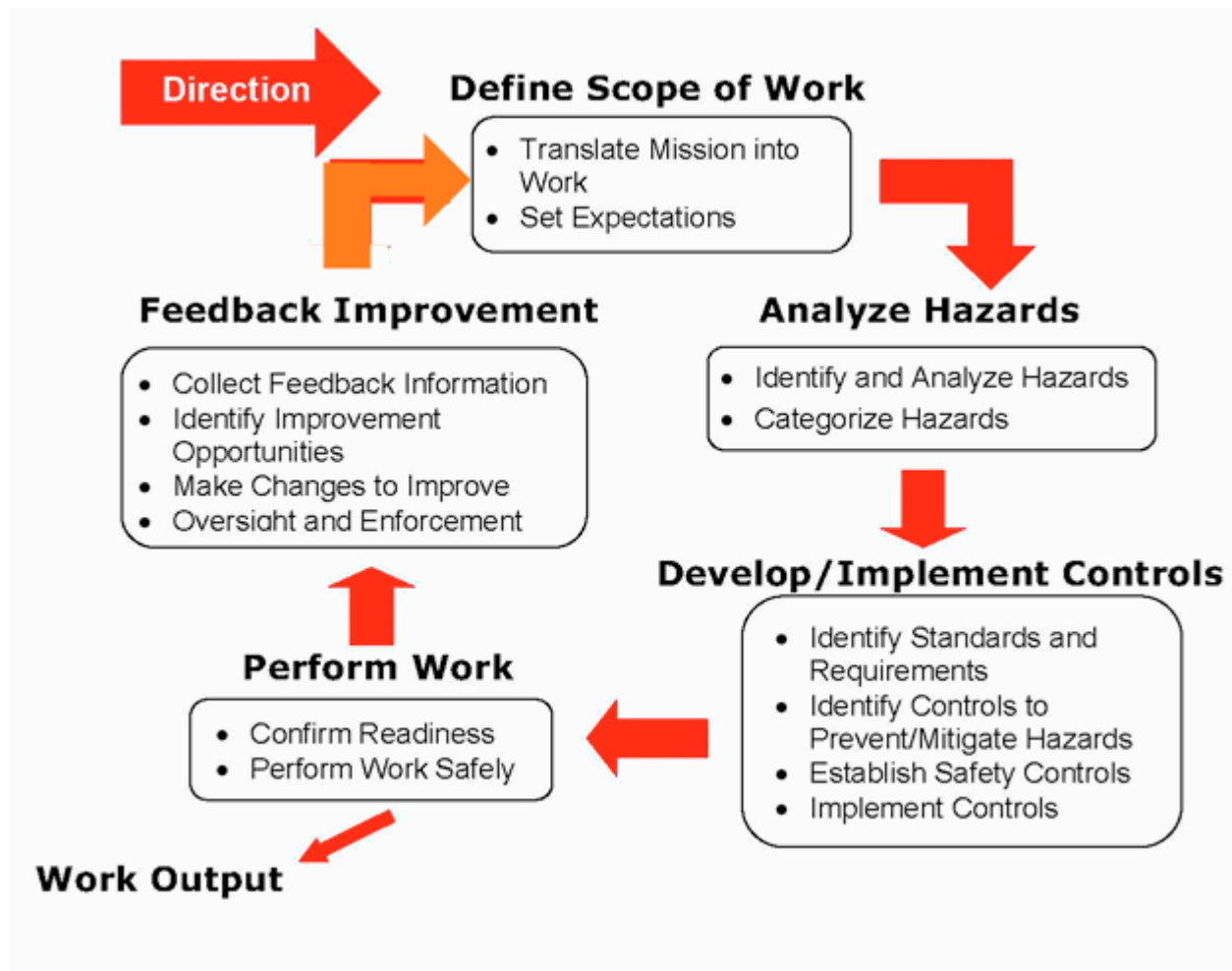


Figure 1. Safety Management Functions

Operational imperatives of safety, continuous improvement, disciplined operations, cost effectiveness, and teamwork support the ISMS and the DOE site office strategic plan general management focus area objectives of safety and security; technical capability and performance; community, state and regulator relationships; cost effectiveness; and corporate perspective to manage the site through effective teamwork internally and with the DOE and the nation.

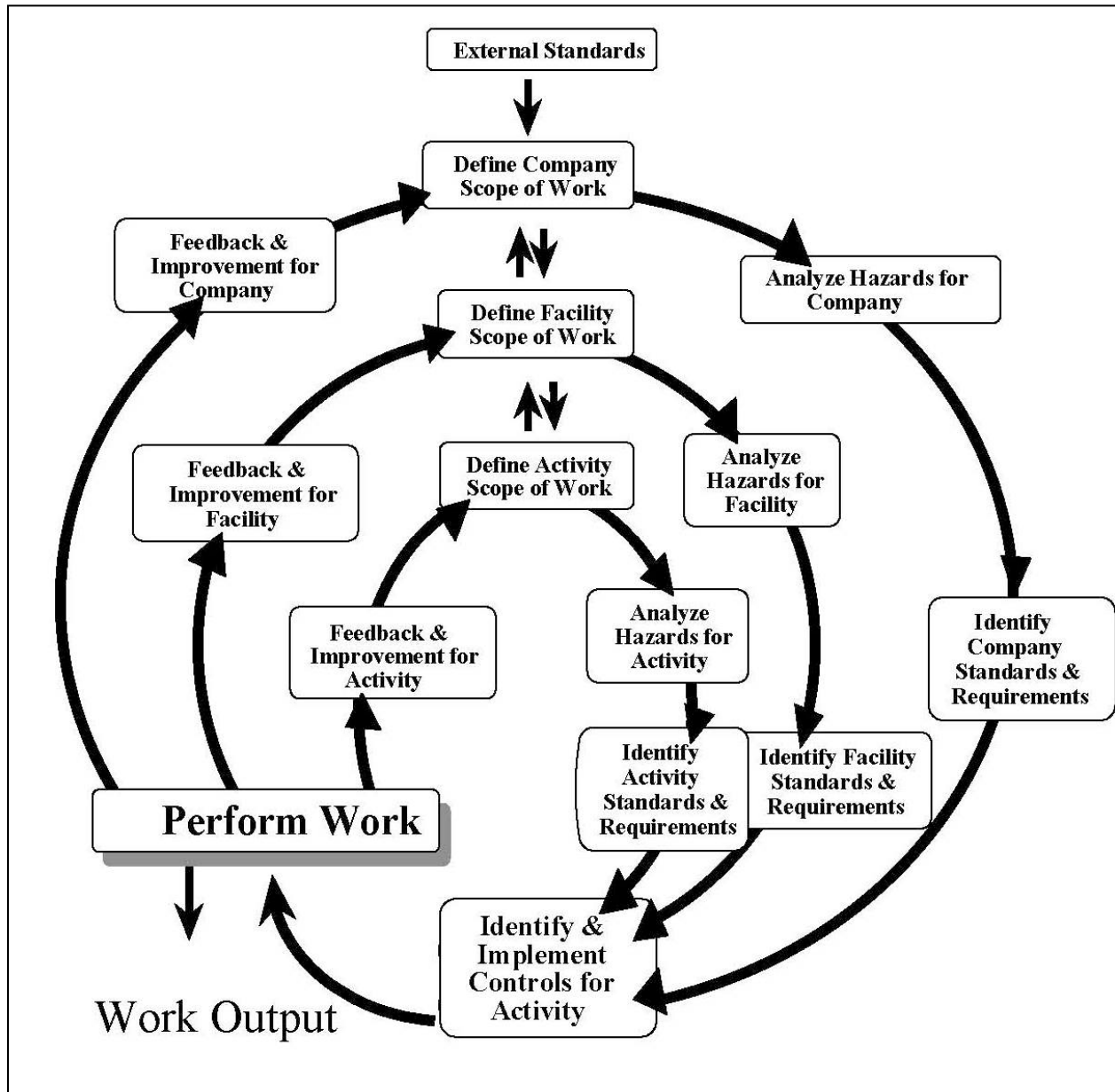


Figure 2. Application of ISM Core Functions at All Levels.

(d) Mechanisms.

Mechanisms are the means by which agreements are reached with the DOE site office and the safety management functions are implemented and performed. As shown in Figure 3, Environment, Safety and Health Requirements in the form of laws, regulations, DOE Directives, consensus standards and others flow down from their source into the contractor's standards/requirements identification document (S/RID) listing requirements that DOE agrees are applicable to the work and conditions at the site. The S/RID defines the applicability of requirements on a facility basis according to the work and hazards conducted at each facility. The

contract directs that all work be conducted according to the applicable requirements in the S/RID. From the S/RID, the applicable requirements flow down to policies and procedures established and maintained by the *Integrated Procedures Management System*. These policies and procedures include controls tailored to the work/activity and the type and level of hazards present. Specific mechanisms used to accomplish the ISMS functions in accordance with the ISMS guiding principles are presented in Section 5. A listing of policies, procedures and manuals describing the ISM mechanisms is located in Section 8 of this ISMS description.

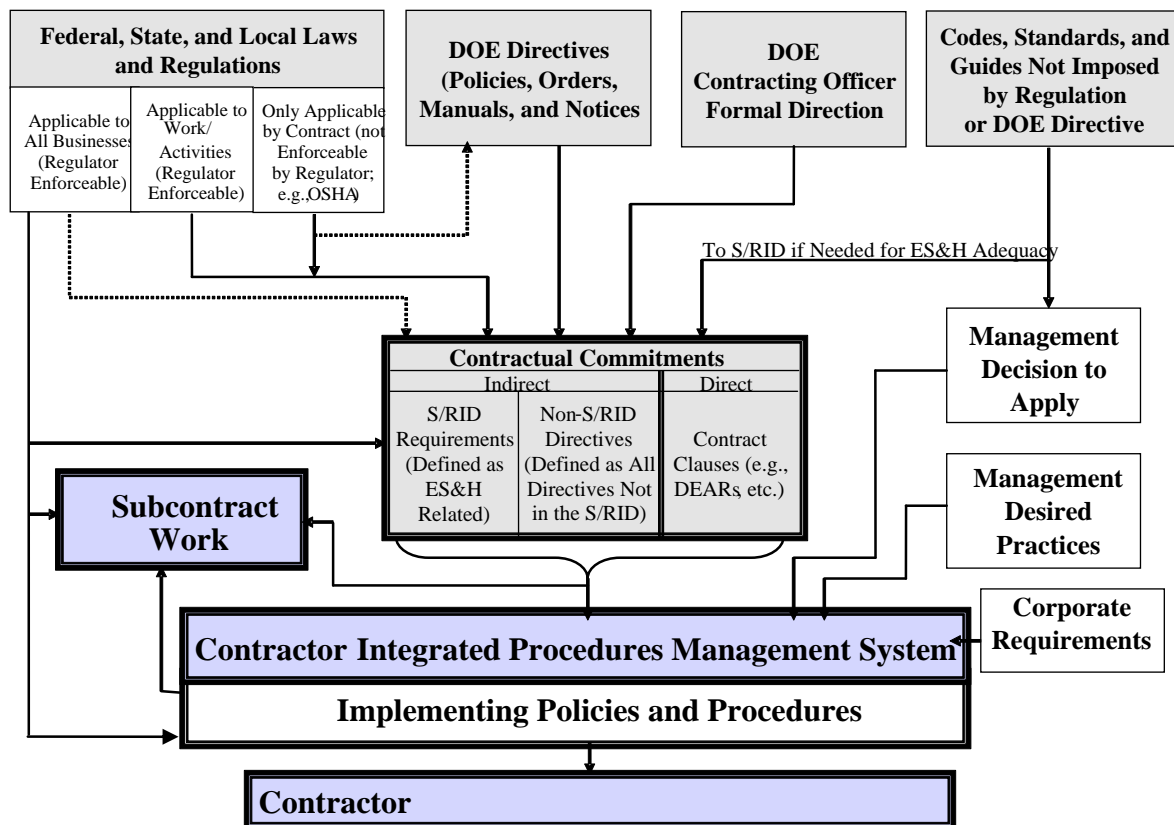


Figure 3. Site System for Flowing Down ES&H and Other Requirements to the Work

(e) Responsibilities

The contract is organized to satisfy the first guiding principle that line management is responsible for safety. Unambiguous lines of responsibility are paramount to effective safety management at this site. The second guiding principle, that roles and responsibilities are clearly defined, is satisfied in the *Integrated Procedure Management System* by the assignment, within each procedure, of functional responsibilities and approval authorities for each proceduralized activity. From a mission perspective, organizational mission statements are developed for all levels of the company as part of the site program

management process (Procedure Manual 6B). The contractor satisfies the third guiding principle by staffing the organization with personnel having competence commensurate with their responsibilities (Procedure Manuals 4B, 5B, and 1Q). Reporting to the company president are personnel having appropriate line management authority for their areas of responsibility. Line management has primary responsibility for safely operating facilities and conducting activities. **Figure 4** displays the organizational structure and the primary services provided by each Business Unit.

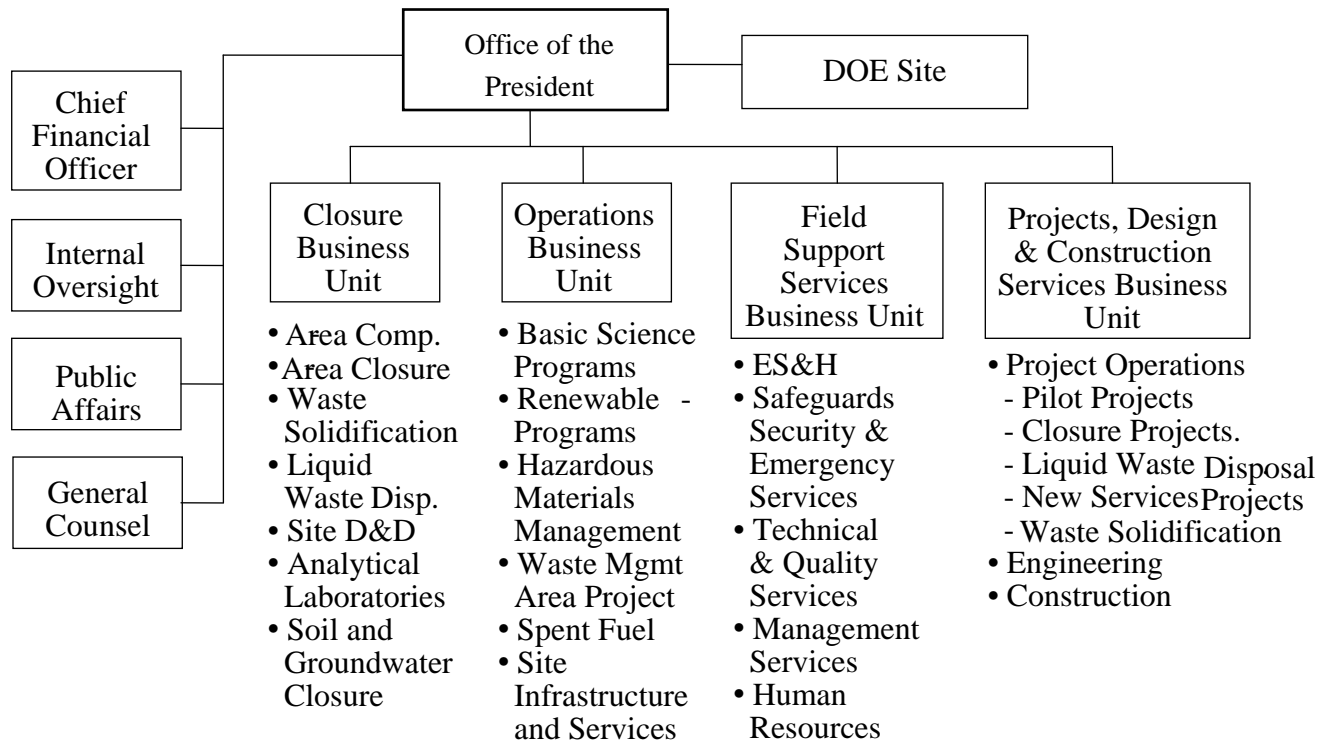


Figure 4. Contractor Functional Organization Structure

(f) Implementation:

The strategy for implementing the ISMS continues to be the use of site-wide programs that meet the DOE and contractor shared objective, principles, and functions for tailoring requirements to accomplish specific work at specific facilities. The Integrated Procedures Management System (IPMS), depicted in **Figure 3**, with the policies and procedures created and maintained within that system, serve as the vehicle for implementing the objective, principles, and functions of the ISMS. Environment, safety and health program requirements, including Safeguards and Security requirements, are incorporated into the

implementation of the work, using the IPMS, through the process illustrated in **Figure 5**.

To enhance ISMS implementation, the following ISMS-specific courses are available to site personnel:

- ISMS Overview – Computer-Based Training (CBT) version;
- ISMS General (for Workers, Professionals and managers); and
- ISMS Executive Orientation.

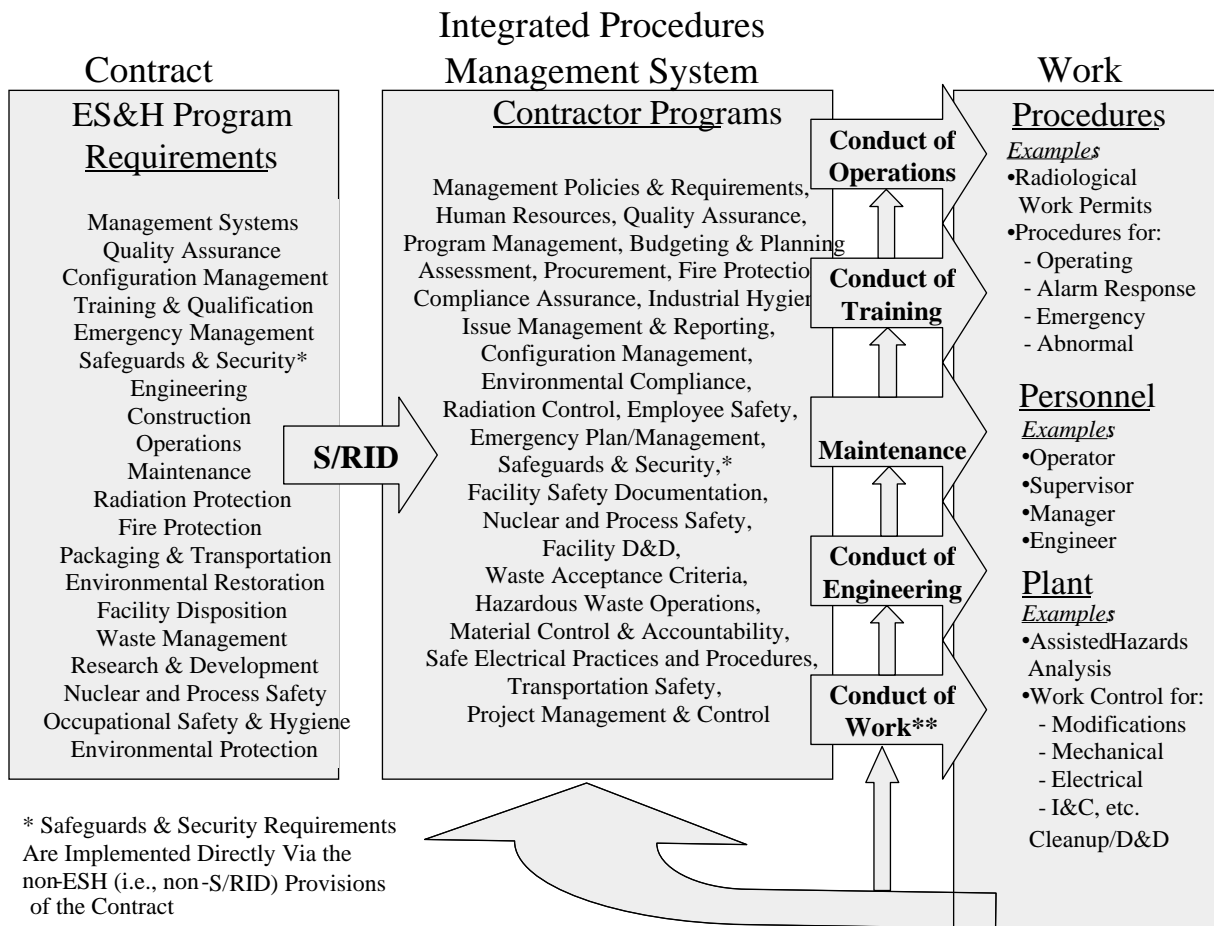


Figure 5. How Environment, Safety, and Health Requirements Are Incorporated into Work.

A.5. INTEGRATED SAFETY MANAGEMENT SYSTEM MECHANISMS

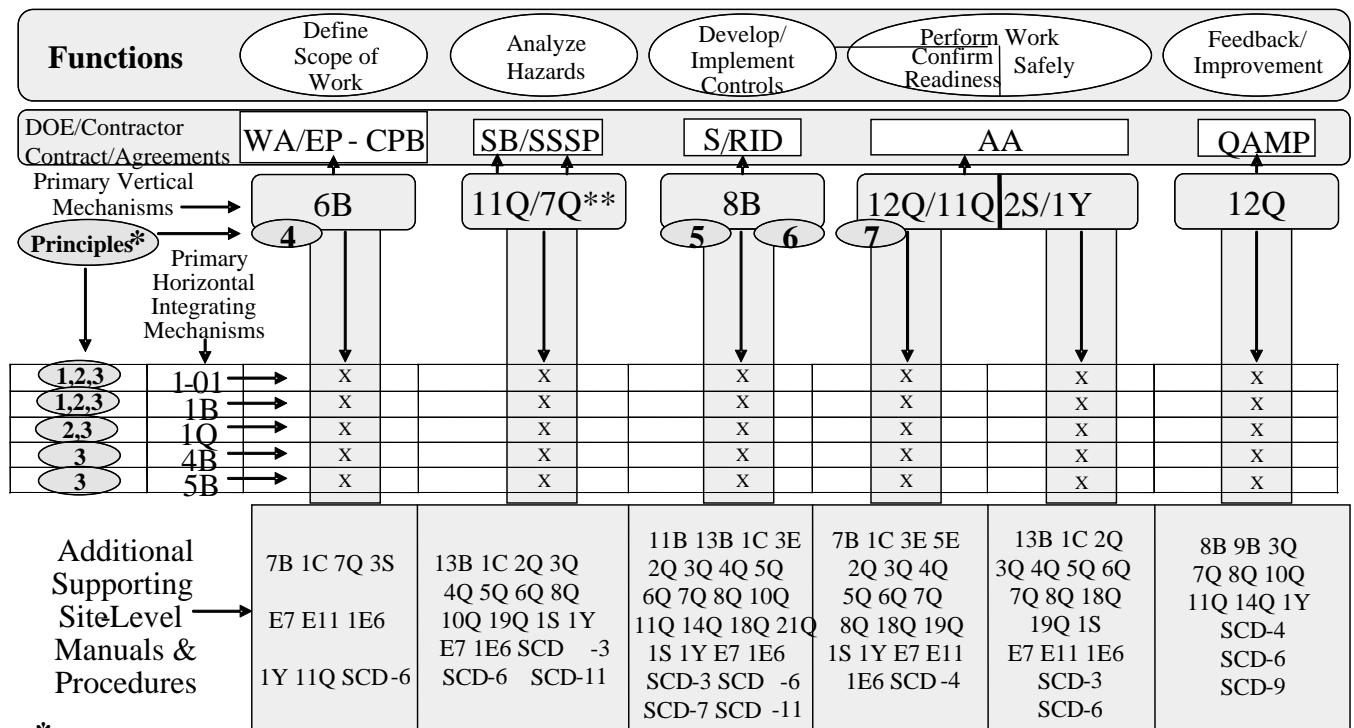
This Section describes how Environment, Safety and Health programs are incorporated into the work. This Section also links the Department of Energy's safety objective, principles, and functions with implementing strategy and responsibilities discussed earlier. Figure 6 illustrates the primary company-level manuals and procedures that define the mechanisms that direct the safe conduct of work at all facilities, for all activities and organization levels, covered by contract, which itself is a mechanism. Also described are the roles the primary manuals serve in satisfying the ISMS Core Functions and guiding principles. Vertical integration is illustrated by the flowdown of ISMS requirements to the primary company-level procedural mechanisms (manuals) and other supporting company-level manuals and procedures. The following manuals serve as primary vertical integrators:

- Procedure Manual 6B, Program Management Manual;
- Procedure Manual 11Q, Facility Safety Document Manual – (Procedure Manual 7Q, Security Manual for Safeguards and Security vulnerabilities);
- Procedure Manual 8B, Compliance Assurance Manual;
- Procedure Manual 2S, Conduct of Operations Manual;
- Procedure Manual 1Y, Conduct of Maintenance Manual; and
- Procedure Manual 12Q, Assessment Manual.

Horizontal integration is illustrated by the Manuals which cross-cut all of the Core Functions. There are five Manuals of this type:

- *Management Policies* (selected Policies);
- Procedure Manual 1B, *Management Requirements and Procedures* (selected procedures);
- Procedure Manual 1Q, Quality Assurance Manual;
- Procedure Manual 4B, Training and Qualification Program Manual; and
- Procedure Manual 5B, *Human Resources Manual*.

The ISMS roles served by the primary ISMS Manuals above and the additional supporting Manuals and Procedures, as illustrated in **Figure 6** are described in detail in this Section and in Section 8 below.



* Principles:

- 1 - Line Management Responsibility for Safety
- 2 - Clear Roles and Responsibilities
- 3 - Competence Commensurate With Responsibilities
- 4 - Balanced Priorities
- 5 - Identification of Safety Standards and Requirements
- 6 - Hazard Controls Tailored to Work Being Performed
- 7 - Operations Authorization

Note For a brief description of each Manual shown above, refer to the Bibliography in Section 8

** The mechanism for Safeguards & Security Vulnerability and Risk Analyses is the Security Manual (Procedure Manual 7Q)

Figure 6. ISMS Mechanisms

For work performed by subcontractors, Procedure Manual 7B, *Procurement Management Manual*; Procedure Manual 11B, *Subcontract Management Manual*; Procedure Manual 3E, *Procurement Specification Procedure Manual*; and Procedure Manual 8Q, Procedure 15, *Safety and Health Program for site Visitors, Vendors, and the contractor/BSRI Subcontractors* direct the specification and documentation of safety and health requirements in purchase requisitions and Subcontract Statements of Work. The *site Requirements for Services Subcontracted Scope (SR3S)* database is invoked by Manual 3E to assure the flowdown of appropriate contractor S/RID requirements into subcontracts. That database, accessible on this site's intranet, assists preparers of procurement Statements of Work (SOW) by providing pre-prepared text that describes requirements for certain key SOW activities. The prepared texts contained in this database were developed by the cognizant Functional Area managers and subject matter experts. Procedure Manual 8Q, Procedure 15, workplace safety and health program for site visitors, vendors, and contractor/subcontractors establishes responsibilities and

requirements to ensure visitors, vendors, and subcontractors are provided a safe work environment while at this site. That procedure and Procedure Manual 7Q, *Security Manual*, establish Point of Entry requirements that include presentation of General site Safety, Security, and Radiological Point of Entry briefings for all non-photo (temporary) badged personnel prior to entry onto the site. **Figure 7** illustrates that, to comply with the ISM DEAR Clause, 970.5223-1, located in the contract, subcontracts contain the mechanisms necessary to inform and hold subcontractors accountable for implementing the appropriate requirements for which the contractor is responsible regardless of who performs the work.

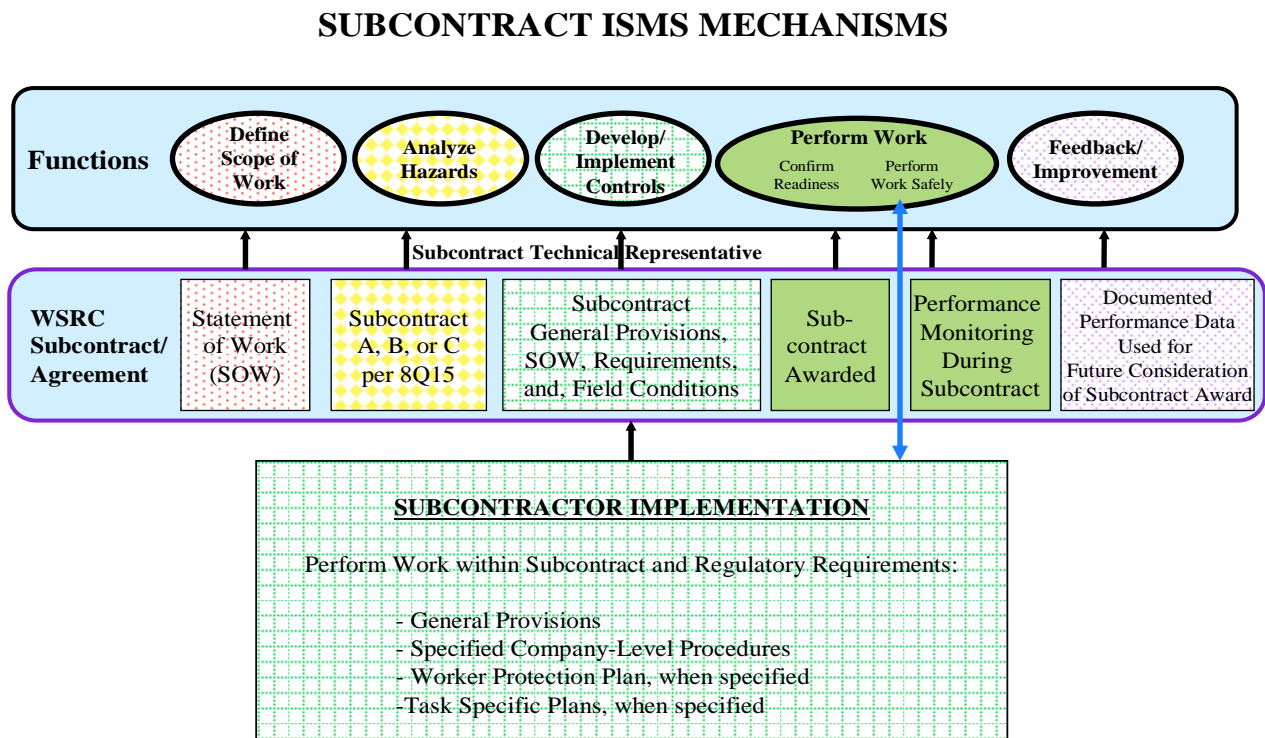


Figure 7. Subcontract ISMS Mechanisms

(a) Approval of Company-Level Policies and Procedures

The site Policy and Procedure Council (SPPC) serves as the single point of authority for authorizing the preparation of company-level policies and procedures that will involve additional requirements or increased cost. The SPPC identifies and involves other area project, functional, and department managers, as appropriate, in the review of proposed changes to procedures. Primary responsibilities for managing company-level policies and procedures is assigned to Functional managers responsible for the program administration and management of the content of company-level policies and procedures, and who report directly to business unit directors or the Office of the President. The Functional managers effectively integrate the formulation and implementation of

company-level policies, procedures, and processes, and review and approve company-level policies and procedures. The SPPC identifies and involves affected area project and functional managers in the review of proposed changes to procedures. The SPPC reviews requirements and cost/schedule impacts with the affected Functional managers and resolves any associated issues and to authorize the procedure coordinator/author to proceed with preparation of procedures that will add requirements or increase costs.

Additional committees, (see this attachment, paragraph 8,) provide input to company-level policy and procedure reviews and recommendations, and promote communications, networking, and lessons learned sharing that aids effective implementation of changes. The committees provide technical guidance to site-wide programs and foster integration of mutually acceptable concepts among the site programs and across organizational boundaries. The site Policies and Procedures Council Charter is embedded in Procedure Manual 1B, MRP 3.26.

(b) **Role of Company-Level Mechanisms in Implementing the ISMS Functions**

FUNCTION 1: Define Scope of Work

Primary Company-Level Procedural Mechanism:

| | | |
|---------------------|----------------------------------|---|
| Procedure Manual 6B | <i>Program Management Manual</i> | Functional manager: Management Services |
|---------------------|----------------------------------|---|

Related Agreement Mechanism(s): contract; Work Authorization/Execution Plan (WA/EP), site Safeguards and Security Plan (SSSP)

Discussion:

The *Program Management Manual* (Procedure Manual 6B) contains the mechanisms by which the contractor determines what work will be accomplished given the priority of the work and the available funding. The *Work Authorization Document*, described in that manual, authorizes a performing organization to execute a defined scope of work. According to the contract, the general management goals and objectives for the site are outlined in the site Strategic Plan and the Performance Management Plan (PMP). The site Strategic Plan addresses goals and objectives for the site, including those of the DOE Program Office. The EM PMP addresses the Accelerated Clean-Up objectives. In accordance with the Performance Evaluation Management Plan (PEMP), contractor performance of the DOE Program Office work will continue to be evaluated against PBIs, whereas performance of EM work will be evaluated against EM Clean-Up Objectives. An EM contract Performance Baseline (CPB) defines the scope of work under prescribed cases and the associated Budgeted Cost of Work Scheduled (BCWS)

The site management control system (MCS) is the process used to manage and integrate the mission requirements. The MCS transforms mission and requirements into a baseline consisting of scope, schedule, cost, and performance metrics. It also provides a prioritization process to ensure a balanced approach to line and support tasks and resources, and ensures that safety management is integrated into the budget process. The MCS provides the management structure for planning, integrating and accomplishing goals by organizing and defining the scope of work into a work breakdown structure (WBS) and an organization breakdown structure (OBS).

The WBS is a task or product oriented hierarchical tree that includes all authorized contract work and defines the end products and deliverables in manageable units of work. The clearly defined units of work are then integrated with a responsibility assignment matrix with the cross support of support organizations to align the proper technical disciplines with the appropriate elements of responsibilities. Contractor functional departments are staffed with the unique core personnel required to perform the primary duties associated with the site program requirements. Authorized work is assigned to a department based upon the nature of the work. The Organizational Breakdown Structure (OBS) identifies organizations required to fulfill the work authorization/execution plan (WA/EP) requirements. An OBS is used to assign responsibility to the various organizations required to plan and control the work. The SPPC approves Manual 6B procedures necessary to implement these activities.

The *Program Management Manual* (Procedure Manual 6B) also specifies use of the *Project Management and Control System Description Manual* (Procedure Manual E11), which establishes the site responsibilities and requirements for a process to perform cost effective planning, control, and execution of projects using a risk-based approach. That procedure is applicable to all projects at the site. For the purposes of that procedure, a project is defined as a unique effort that supports a program mission with defined start and end points, undertaken to create a product, facility, or system with interdependent activities planned to meet a common objective/mission. Projects include planning and execution of construction, renovation, modification, soil and groundwater closure projects, or decontamination and decommissioning efforts, and large capital equipment or technology development activities. When modifications are necessary, Project managers are directed by the *Conduct of Modifications Manual* (Procedure Manual 3S).

Early in the project/modification or proposed activity planning, a Safety Basis (SB) Strategy is developed according to Manual 11Q, Procedure 1.10. The SB strategy establishes the approach to be taken with regard to scope, strategy, materials, and methods that will become prime factors of the facility or activity Safety Basis.

A disciplined conduct of projects (DCOP) initiative is implemented primarily in Procedure Manual E11, *Conduct of Project Management and Control* to address

self-identified project management issues involving leadership, accountabilities and authorities, procedural compliance, and project scope control.

A facility evaluation board – project review team (FEB-PRT) has been established as part of the DCOP initiative to independently assess project compliance with standards, controls, and procedures to promote discipline and continuous improvement in the accomplishment of projects.

At the site level, the contractor and DOE-site line and program management utilize a prioritization process to decide which work scopes will be executed with the available funding. This process ensures that significant risks and safety hazards are identified, reviewed, and factored into critical funding decisions to ensure balanced priorities. The mechanism for setting expectations is described in the contract.

The site safeguards and security plan (SSSP) as described in the Security Manual (Procedure Manual 7Q) is used in addition to the WA/EP for defining the scope of S&S work and allocation of resources and is approved by DOE site and Headquarters program offices with concurrence by DOE Headquarters Security and Safety Performance Assurance Office.

FUNCTION 2: Analyze Hazards

Primary Company-Level Procedural Mechanism:

| | | |
|-----------------------|--|--|
| Procedure Manual 11Q* | <i>Facility Safety Document Manual</i> | Functional manager: Technical and Quality Services |
|-----------------------|--|--|

*The mechanism for analyzing Safeguards and Security Threats and Vulnerabilities, which are treated as hazards in ISMS, is Procedure Manual 7Q, *Security Manual*.

**Procedure Manual 11Q procedures that implement the USQ Program (per 10 CFR 830, subpart B) must be approved by DOE.

Related Agreement Mechanisms: safety basis documentation, vulnerability analysis reports and site safeguards and security plan (SSSP)

Discussion:

The facility safety document manual (Procedure Manual 11Q) is the primary document that specifies the process for determining facility hazard categories and specifies how to tailor the type and level of Safety Documentation to the type and level of hazards. That manual also specifies the documentation process to establish the safety envelope and approval authorities for Safety Basis documents. Additional guidance on the analysis and documentation of hazards is given in SCD-11, consolidated hazards analysis process (CHAP) manual described below.

In the area of Safeguards and Security (S&S), vulnerabilities and threats are treated much the same as traditional safety hazards. The Security Manual (Procedure Manual 7Q) is the primary document that specifies the process for determining the levels of threats and specifies how to tailor Safeguards and Security controls to the type and level of threat. The Vulnerability Analyses in the site SSSP serve as the S&S analog to safety basis documents. The SSSP must be approved by DOE-Headquarters program office with concurrence by DOE Headquarters Security and Safety Performance Assurance Office.

After a scope of work is defined, the hazards of specific work elements for facility modifications, new facilities, and new non-facility projects/activities are identified, and a Safety Basis Strategy is established according to Manual 11Q, Procedure 1.10. Once identified, hazards are analyzed and categorized by type and quantity as a basis for determining the documentation standards applicable to the work. The term Safety Documentation is used to describe this documentation. The *Facility Safety Document Manual* (Procedure Manual 11Q) addresses process hazards to workers, the public and the environment. The hazards analysis provides the foundation for identifying standards, requirements, and engineered controls needed to prevent/mitigate identified hazards. This foundation is a crucial element of the standards selection aspect of the site S/RID in that applicability of requirements is tailored largely to facility hazard categories. Functional Area 00 of the S/RID explains this aspect in detail and includes the identification of site facilities within each hazard category. Linking Documents (per Procedure Manual 11Q, Procedure 1.06) are used for all Hazard Category 1, 2, and 3 Nuclear Facilities to identify the linkage between Safety Basis requirements and the documents that implement the requirements.

Line management is responsible for the hazard analyses (a term used broadly here to include safety documentation and associated limits), change management of safety documentation, and assuring that the operation is within the safety envelope parameters (for nuclear facilities these are set forth in the safety basis). For nuclear facilities, the unreviewed safety question (USQ) process (Procedure Manual 11Q, Procedure 1.05) is the mechanism that ensures proposed changes can be conducted within the bounds of the approved safety basis. The analysis of inadvertent nuclear criticality hazards is addressed by *Nuclear Criticality Safety Manual* (-SCD-3).

The CHAP manual focuses the multiple Hazards analysis program requirements from several functional areas (including, but not limited to, occupational safety and health, nuclear and process safety, emergency management, environmental protection, fire protection, safeguards and security, radiation protection, packaging and transportation). Part of this manual is Hazmap, a tool that identifies and defines, for project planners, the characteristics of the various hazards analyses required at each stage of the life cycle of a facility from the conceptual, design and construction project, through the operational and finally, the D&D phases. The second part of CHAP integrates and consolidates much of the

analytical processes and data into a tighter, more unified process that reduces duplication, overlap and inconsistencies in large complex projects. Although the use of CHAP is optional (at the discretion of the project manager according to project complexity for new facilities and major facility modifications), it has been fully implemented by one the contractor organization and has been applied successfully to several projects in other organizations. Project managers may elect to prevent/control overlap, duplication, and inconsistencies in the hazards analyses without using CHAP for relatively smaller and simpler to manage projects.

At the activity/task level, implementation of an Assisted Hazards Analysis (AHA) process described in Procedure Manual 8Q, Procedure 120 is complete. The AHA process is an enhanced method for the assessment of safety, environmental, and radiological hazards associated with specific tasks, and the identification of controls needed to perform those tasks safely. The AHA process uses a graded approach, based on the complexity of the tasks, to define the level of involvement required for the completion of the AHA. Regardless of the complexity of the tasks, an AHA determination is required to ensure that the scope of the job is defined, the hazards are analyzed, and the controls are identified prior to performing work. The AHA Process, utilizing participation of workers in the identification of hazards, is directed by 8Q, Procedure 120 for work controlled by Procedure Manual 1Y, 8.20 for Maintenance work, Procedure Manual D3 for site utilities work, Manual C2, Procedure 2.05 for site D&D work, and for other stand-alone work not controlled by Manuals 1Y, D3, or C2. Following completion of the AHA and establishment of all identified controls, commencement of the work may be authorized by the Shift manager’s approval signature on the Safe Work Permit. Additionally, pre-job briefings are required before the work is executed.

More implementation details on Function 2 are presented below in paragraph 4, Protection of the Workers, the Public and the Environment. The *Security Manual* (7Q) specifies the measures necessary to determine appropriate protection of nuclear materials commensurate with the attractiveness of the materials for theft or diversion.

FUNCTION 3: Develop/Implement Controls

Primary Company-Level Procedural Mechanism:

| | | |
|---------------------|------------------------------------|--|
| Procedure Manual 8B | <i>Compliance Assurance Manual</i> | Functional manager: Technical & Quality Services |
|---------------------|------------------------------------|--|

Related Agreement Mechanism(s): *Standards/Requirements Identification Document*

Discussion:

The *Compliance Assurance Manual* (Procedure Manual 8B) details how all standards and requirements are documented, their applicability is determined, and compliance is assessed. The mechanism for cataloging ES&H requirement applicability for all facilities operated under the contract is the Standards/Requirements Identification Document (S/RID), a document approved by the DOE site office. The S/RID lists applicable ES&H requirements, and another document entitled *Applicable Non-ESH DOE Directives* are both incorporated into the contract by reference. The Rule will be included in this list of requirements incorporated into the contract but will be complied with regardless of the contract because it is enforceable under PAAA. This also is true for Title 10 CFR 850 *Chronic Beryllium Disease Prevention Program* because it is “deemed an integral part of the worker safety and health program under part 851” and is enforceable under PAAA (10 CFR 850.1 and 10 CFR 850.4 February 9, 2006 revision). The S/RID also may include optional standards identified in this Guide or other standards the contractor and DOE site office agree are needed.

The majority of the DOE Directive requirements that drive Safeguards and Security (Procedure Manuals 7Q, 10Q, and 14Q); Program Management (Procedure Manual 6B); and Headquarter program office-specified requirements are on the Non-ESH List. The contractually-driven requirements in the non-ESH List are mandatory unless exemptions are granted by the cognizant DOE-HQ office. Together, the S/RID and the Non-ESH List represent what is termed ‘List B’ in DEAR 970.5204-2. That DEAR Clause also defines an optional ‘List A’, a list of “...Applicable Laws and regulations...” A formal ‘List A’ is not documented; however, the S/RID includes those applicable laws and regulations that are ES&H requirements. Of course, the contractor is obligated to follow all applicable laws and regulations regardless of their presence on any list. The S/RID and the *Applicable Non-ESH DOE Directives* list are both administered by Procedure Manual 8B which directs that both are accessible on this site’s intranet system.

Any change to the S/RID requires the contractor and DOE-site formal approval through an S/RID change package. Refer to Functional Area 00 of the S/RID for additional discussion of the development, maintenance, and compliance activities associated with the S/RID. S/RID Functional Area 00 also contains listings of facilities grouped by hazard types and levels in a way that facilitates tailoring of the hazard control standards and requirements to the work and hazards at the listed facilities. The facility safety document manual (Procedure Manual 11Q) contains the hazard categorization criteria mechanisms for deciding which facilities appear on the various lists. Similarly, the Security Manual (the contractor 7Q) contains the procedures that tailor levels of protection commensurate with the potential security risks and vulnerabilities.

Procedure Manual 8B describes a part of the S/RID process whereby a Table 2 is developed to list a manual or procedure that implements each requirement

contained in Table 1 (S/RID). The integrated procedures management system (IPMS) shown in **Figures 3 and 5** provides the procedural controls for work to be accomplished in compliance with the S/RID requirements.

FUNCTION 4: Perform Work

Primary Company-Level Procedural Mechanism:

| | | |
|----------------------|---------------------------------|--|
| Procedure Manual 11Q | Facility Safety Document Manual | Functional manager: Technical & Quality Services |
| Procedure Manual 12Q | Assessment Manual | Functional manager: Technical & Quality Services |
| Procedure Manual 2S | Conduct of Operations Manual | Functional manager: Internal Oversight |
| Procedure Manual 1Y | Conduct of Maintenance Manual | Functional manager: Technical & Quality Services |

Related Agreement Mechanism(s): *Authorization Agreements* for selected facilities per Procedure Manual 11Q, 1.08 are required by paragraph H.15 of the contract.

Discussion:

The *Assessment Manual* (Procedure Manual 12Q) defines the Mechanisms for confirming readiness to do work prior to startup or restart, establishes the basis for confirming readiness, identifies specific confirmation processes, and designates approval authorities. The specific confirmation processes are accomplished by conducting performance-based assessments at the facility/activity by observing qualified operators doing work using authorized procedures. The readiness confirmation process ensures that work may be conducted safely and in accordance with all S/RID and other contractual and regulatory requirements.

Operations at selected facilities (facilities of primary concern) are specifically authorized by authorization agreements (AAs) per the facility safety document manual (Procedure Manual 11Q, Procedure 1.08). AAs state the bases for DOE’s decision to authorize the specific scope of operations specified in the AA. The AA also contains the terms and conditions incumbent on the contractor to ensure the facility can be operated while protecting the environment and the health and safety of the workers and the public.

The *Conduct of Operations* (Procedure Manual 2S) and *Conduct of Maintenance* (Procedure Manual 1Y) manuals describe the Mechanisms for performing work safely following startup authorization and confirming readiness on a day-to-day basis at the facility/activity level. This is accomplished by Plan of the Day, Plan of the Week, pre-job briefings, shift turnover meetings, and work control programs.

The *Conduct of Operations Manual* (Procedure Manual 2S) sets forth operational standards at the activity/task level for: content, format and procedure approval;

communication and notification; training; and shift and facility operations. The *Conduct of Maintenance Manual* (Procedure Manual 1Y, Procedure 8.20) establishes a Work Control System (WCS) that ensures safety is planned and integrated into maintenance activities at the work-site level, and it implements the Computerized Maintenance Management System (Passport) that supports the work control processes.

Procedure Manual 1Y, Procedure 20.01, *Project Specific Addenda*, and Procedure Manual 2S, Procedure 6.1, *Alternate Implementation Approval* provide for documenting, reviewing and approving deviations, exceptions, and alternate implementation methods (from portions of the 1Y and 2S Procedure Manuals) for facility and non-facility activities and processes where: 1) the activity or process being performed is significantly different from that described in the 1Y and/or 2S Manuals, 2) the degree of risk associated with the exception/alternate implementation method is low and the financial impact of implementation is so high that meeting the requirements in the manner stated in these Procedure Manuals is not warranted. In either case, the alternate implementation method or deviation must meet established DOE Order and S/RID requirements or DOE authorization must be obtained to deviate from established requirements.

Use of the Assisted Hazard Analysis (AHA) process, described in Procedure Manual 8Q, Procedure 120, integrates the Hazard Analysis into the maintenance work planning process (1Y, 8.20), the site Utilities work planning process (Manual D3), the site D&D Work Control process (Manual C2, 2.05), and other stand-alone work not covered by Procedure Manuals 1Y, D3, or C2. The *Construction Management Department Manual* (Procedure Manual 1E6) specifies safety practices that address worker protection for personnel performing construction work, and construction engineering practices that help ensure the safety of the end user of the project. The conduct of research and development manual aligns the unique nature of R&D work to the five ISMS Functions and provides guidance to researchers on the use of ISMS mechanisms for R&D work. Regardless of the type of work to be done (i.e., Maintenance, Utilities, D&D, etc) the work control processes used are consistent with the Quality Assurance requirements contained in Procedure Manual 1Q, Procedure 9-4 *Work Processes*, and the Hazard Analysis requirements located in Procedure Manual 8Q, 120, *Hazard Analysis*. [Note: Effective 7/29/05, Procedure Manual 8Q, 122, Hazard Analysis (interim) was issued to replace 8Q, 120 over a six-month period. This new procedure includes, among other improvements, the use of a Safe Work Permit (SWP). The SWP, issued for a specified scope of work, serves to document and ensure the communication (via pre-job briefings) of the identified hazards, the applicable controls, and the authorization status of the work among the Lead Work Group Supervisor/manager, the Shift manager, and the Workers who must all sign the SWP. The SWP serves to ensure the required controls are in place and remain intact for the duration of the execution of the defined scope of work, and includes a feature for suspension of the SWP and notification of all parties who signed the SWP when a Stop Work Order is issued or a "Time Out" is

taken. When the issue has been resolved, the SWP can be re-authorized to resume work.

Line Management is responsible for tailoring site-wide safety programs to facility work using the *Conduct of Operations Manual* (Procedure Manual 2S) and the *Conduct of Maintenance Manual* (Procedure Manual 1Y) as basic operational doctrine (**Figure 5**). Each Line manager clearly communicates performance expectations for Conduct of Operations and Maintenance to all workers. Facility personnel are responsible for following procedures that prescribe the controls necessary to perform work safely. Only qualified personnel are allowed to operate and maintain facilities and equipment, except personnel-in-training in directly-supervised training situations. Qualified personnel have been trained to pay particular attention to safety during performance of work and to use appropriate procedures that assure work is performed safely and in accordance with all S/RID and other contractual and regulatory requirements.

FUNCTION 5: Feedback/Improvement

Primary Company-Level Procedural Mechanism:

| | | |
|-----------------------------|--------------------------|--|
| <i>Procedure Manual 12Q</i> | <i>Assessment Manual</i> | Functional manager: Technical and Quality Services |
|-----------------------------|--------------------------|--|

Related Agreement Mechanism(s): *Authorization Agreements* for selected facilities per Procedure Manual 11Q, 1.08 are required by paragraph H.15 of the contract.

Discussion:

The *Assessment Manual* (Procedure Manual 12Q) describes a requirements-based two-tiered system consisting of a) *Management Assessment*, based on 10 CFR 830.120 Subpart A, (QA Rule) and DOE O 414.1B Criterion 9, comprised of self-assessments (see Procedure Manual 12Q, SA-1) and performance analysis (see Procedure Manual 12Q, PA-1) using strong Line Management involvement; and b) *Independent Assessment* (see Procedure Manual 12Q, FEB-series procedures) based on 10 CFR 830.120 Subpart A, and DOE O 414.1B Criterion 10, *Independent Assessment*: a consolidated, multi-disciplined, independent, company-level ISM Evaluation (ISME) activity, performed by Facility Evaluation Boards. The expectation basis for assessments in both tiers is documented in assessment performance objectives and criteria SCD-4). These Performance objectives and criteria (POC) are linked to a smart sample of requirements from the S/RID as implemented by company-level Procedure Manuals. Assessments using POC selected from SCD-4 have proven appropriate for the following purposes:

- Demonstration of readiness for nuclear activity startup or restart;

- Effective identification of deficiencies and opportunities for performance improvement through self-assessment and independent oversight of operational activities;
- Providing a focus for management to evaluate performance data; and
- Demonstration of field adherence to policies and procedures when applied to operational activities.

The SCD-4 Functional Areas for assessments are listed in the table below:

Contractor-SCD-4 FUNCTIONAL AREAS

| Functional Area (FA) | Title | FA | Title |
|----------------------|--|-------------------|--|
| 01 | Design | 13 | Emergency Preparedness |
| 02 | Construction | 14 | Review, Assessment & Oversight |
| 03 | Management Systems | 15 | Nuclear Criticality Safety |
| 04 | Training & Qualification | 16 | Testing |
| 05* | Procedures (*moved to FA22) | 17** (deleted) | Occurrence Reporting (**moved to FA03) |
| 06 | Safety Documentation | 18 | Safeguards & Security |
| 07 | Environmental Protection & Waste Mgmt. | 19 | Packaging & Transportation |
| 08 | Quality Assurance | 20 | Occupational Safety & Health |
| 09 | Configuration Management | 21 | Procurement |
| 10 | Maintenance | 22 | Conduct of Operations |
| 11 | Radiation Protection | 23 | Project Management |
| 12 | Fire Protection | 24 | Waste Management |

Performance Analysis (per Procedure Manual 12Q, PA-1) is a process, conducted periodically, for identifying recurring problems and prioritizing improvement opportunities from the analysis of feedback information from all sources. Line Facility managers are required to conduct Performance Analyses of their operations semi-annually. Performance Analysis at the company level is performed quarterly of both event-based and review-based data for a 12-month period. The Performance Analysis Advisory Group (PAAG), sponsored by a management council manages the quarterly site-level performance analysis process. The Disciplined Operations Summary Indicator (DOSI) in the quarterly site-level performance analyses reports analyzes contractor ORPS event data and serves as a site high-level indicator for Disciplined Operations performance. The DOSI utilizes statistical control bands and includes an Alert feature to serve as a leading indicator of declining disciplined operations performance.

Facility evaluation boards conduct independent assessments of facility operations/activities, support organizations, projects, self-assessment programs, and site functional programs. The results of each evaluation are reported directly to the company president. The independent assessment program provides facility and senior management with performance-based information to support continuous improvement, to direct leadership resources, adjust personnel and financial resources, and identify areas of excellence. The program also satisfies contractual and regulatory obligations for company-level independent oversight.

In addition to Facility Evaluation Board (FEB) assessments, self-assessments and analysis of performance per Procedure Manual 12Q, feedback information is also generated by the following program areas:

- Price-Anderson Amendments Act (PAAA) Non-Compliance Tracking System (NTS) reportable non-compliances, per Procedure Manual 8B, CAP-11;
- Problems, documented and processed per MRP 4.23, site Tracking, Analysis, and Reporting (STAR) database;
- Stop work orders (SWOs), per Procedure Manual 1Q, QAP 1-2;
- Occurrence reporting, per Procedure Manual 9B, Procedure 1-0;
- Lessons learned program, per Procedure Manual 1B, MRP 4.14;
- Employee concerns program per Procedure Manual 1B, MRP 1.06;
- Maintenance history and trending per Procedure Manual 1Y, 16.01;
- Unreviewed safety questions (USQ) Program, including potential inadequacies in the safety analysis (PISA) per Procedure Manual 11Q, 1.05; and
- Security Self-Assessments, per Procedure Manual 7Q (based on DOE O 470.1), are conducted to review specific areas of the Safeguards and Security Program.

Feedback information is screened by the Regulatory Compliance Committee for potential significant Price-Anderson Amendments Act (PAAA) non-compliances in accordance with the *Compliance Assurance Manual* (Procedure Manual 8B) and combines with the Performance Analysis process (Procedure Manual 12Q) to ensure self-reporting and prevent recurrence of non-compliances. Additionally, DOE-HQ and DOE-site conduct periodic general and focused external independent assessments of ES&H and Safeguards & Security programs and activities.

Problems identified by the feedback sources listed above are processed through the *Corrective Action Program (CAP)*, MP 5.35, with corrective actions tracked using the STAR database described below. The process is implemented in a tailored manner, with problems assigned to one of four levels of significance, and includes the following elements: problem identification (including Extent of Problem determination), significance determination and problem analysis (including Extent of Condition determination); lessons learned evaluation; corrective action development, implementation and closure; and, effectiveness determinations of completed corrective actions. Post-closure Effectiveness Reviews of completed Significance Category (SC) 1 and 2 corrective actions (optional for SC 3; not required for SC 4) are conducted within 180 days to ensure that the potential for recurrence is minimized. The problem analysis manual contains the causal analysis tree used for assigning causes to identified problems and guidance for determining the type of causal analysis appropriate for the significance level of the problem. An electronic database process, site tracking, analysis, and reporting (STAR) per Procedure Manual 1B, MRP 4.23, defines the process for documenting and managing the resolution of identified problems to meet the requirements of the corrective action program defined in MP 5.35. The STAR process is similarly used for other facility/organization/project commitments and actions (i.e., non-problems) not associated with MP 5.35. The STAR database is an electronic format where problems are entered, analyzed, and associated actions tracked to closure.

In addition to the feedback and improvement mechanisms described above, there is an additional need to review, from a high-level perspective, the effectiveness of the entire Integrated Safety Management System. To satisfy that need, an annual review is conducted to verify the continuing effectiveness of ISMS. By analyzing and reviewing the aggregate of collected feedback data and trends, the annual ISMS review identifies major adjustments that need to be part of an ISMS improvement strategy directed by senior management. Results of the review and selected key performance indicators described below are used to provide input to Annual ISMS Declaration letter which the contractor submits to the DOE site office to support the annual DOE-site ISMS declaration (including all contractors, SREL and the Forestry Service) that is submitted to DOE-HQ. The ISMS declaration is a statement, with supporting justification, that the organization's top management official has determined that the organization's ISM System is fully implemented, maintained and functioning in an effective manner.

The ISM DEAR Clause, 48 CFR 970.5223-1 (e), requires the contractor, "...to annually review and update, for DOE approval, our safety performance objectives, performance measures, and commitments consistent with and in response to DOE's program and budget execution guidance and direction. The DOE ISM Guide, DOE G 450.4-1B, Chapter IV, outlines the various components of the "annual review." The "annual review" does not occur as a single discrete activity, but rather a number of individual actions that occur annually but at different times during the year, and for a number of purposes. Much of what is

reviewed annually involves safety goals and the program and budget activities described below, which are designed to prioritize what work is funded according to importance to safety and reduction of risk. Other annual review activities include the annual review/update of this ISMS Description and the Annual ISM Review (previously ISM Management Evaluation) for the prior calendar year. The S/RID is updated continually, as the manager of this DOE site, issues new or revised source requirements documents for implementation. The S/RID revision and review process is described in Procedure Manual 8B.

A key performance indicators (KPIs) system (described in site performance metric manual measures performance across the company in safety and security; technical capability and performance; community, state and regulatory relationships; cost effectiveness; and contract performance.

Under the safety and security performance measures are

- Industrial safety and health,
- Emergency services,
- Radiological safety,
- Nuclear safety, and
- Physical security.

The format for the KPIs is an annunciator system of key performance indicators (KPIs) with a color rollup scheme, established by the commercial nuclear industry. It provides a quick status overall summary of key operational, safety, and business performance. An example of the Overall Summary is shown in Figure 8 below.

The underlying principle behind each metric is the use of objectivity to assess performance. This system provides not only key information at a glance but also provides the contractor and the DOE site program and project managers the ability to “drill down” through the Focus Area Level 1 metrics to help identify the sources and effects of issues and actions. Instead of focusing only on individual events, it provides a view of emerging trends over the past twelve months.

Adequate resources to maintain and improve contractor ISMS are identified and allocated as part of the annual program and budget execution process. Much of the work under the contract involves D&D and cleanup projects designed to reduce the legacy risks to workers, the public, and the environment posed by the former production facilities. From an overall safety perspective, it is therefore appropriate to monitor the progress of those projects. In addition to the key performance indicators, the earned value management system (EVMS) is another way to monitor technical progress as well as cost and schedule of all work.


In addition, the contractor reviews and updates safety goals for the coming calendar year, and submits findings to the DOE site office. Status relative to these goals is reported quarterly. For the calendar year, the specific safety goals were in the following areas:

- Total recordable case (TRC) rate improvement,
- Days away restricted or transferred (DART) rate improvement,
- Transportation events,
- Personnel contaminations, and
- Employee radiation dose.

| Focus Area | Level I | | | | |
|---|--|---|--|--|-------------------------------------|
| Safety and Security G G G G | Industrial Safety G Y R Y | Emergency Services G G B B | Radiological Safety G B B G | Nuclear Safety B B B B | Physical Security G G G B |
| Tech Capability and Performance B B G B | Production B B B B | Infrastructure G G G B | Disciplined Operations B B G G | | |
| Community, State and Regulatory Relationships G G G G | Environmental Compliance Index B B B B | Employee Relations G G G G | | | |
| Cost Effectiveness B G G B | Fee Performance B B B B | Feedback and Improvement B Y Y G | Processes for Improvement B B G B | | |
| Contract Performance B B B G | Area-1 Closure G B B Y | Area-2 Completion B B B G | Liquid Waste Disposition B B B B | Waste Solidification G G G G | |
| | Soil and Groundwater Closure B B B B | Facilities Risk Reduction B B B B | Solid Waste Risk Reduction G G G G | | |

B Exceptional program, innovative process, or superlative performance;

G Effective performance which meets or exceeds requirements and expectations; therefore, only a maintenance level of management attention or resources is needed.

 The arrow shows how the metric has changed from the previous month. An up arrow is an improvement; a down arrow shows declining performance.

Y "Marginal." Yellow can be used to denote either of two conditions:
-Borderline or declining performance, which needs increased management attention and resources to achieve desired performance or to reverse a negative trend.
-Acceptable performance that relies on a set of conditions which could change and quickly send performance into the "Red" category.

R Degraded or adverse performance warranting significant level of management attention, resources, and improvement.

W Insufficient data or not applicable


 Blue and green metrics that are trending down, may not reach their goal, or other issues that should be brought to management attention.

Figure 8. Example Site Performance Indicators Annunciator Panel—Overall Summary View

The underlying principle behind each metric is the use of objectivity to assess performance. This system provides not only key information at a glance but also provides the contractor and the DOE site program and project managers the ability to “drill down” through the focus area level 1 metrics to help identify the sources and effects of issues and actions. Instead of focusing only on individual events, it provides a view of emerging trends over the past twelve months.

Adequate resources to maintain and improve ISMS are identified and allocated as part of the annual program and budget execution process. Much of the work under the contract involves D&D and cleanup projects designed to reduce the legacy risks to workers, the public, and the environment posed by the former production facilities. From an overall safety perspective, it is therefore appropriate to monitor the progress of those projects. In addition to the key performance indicators, Earned Value Management System (EVMS) is another way that both the contractor and DOE program and project managers can monitor technical progress as well as cost and schedule of all the contractor work managed as a project.

In addition, the contractor reviews and updates its safety goals for the coming calendar year, and president submits those to the DOE site office. Status relative to these goals is reported quarterly. For this calendar year, the specific safety goals were in the following areas:

- Total Recordable Case (TRC) Rate Improvement,
- Days Away Restricted or Transferred (DART) Rate Improvement,
- Transportation Events,
- Personnel Contaminations, and
- Employee Radiation Dose.

(c) **Role of Company-Level Mechanisms in Implementing ISMS guiding principles**

There are seven ISMS guiding principles. guiding principles 1, 2, and 3 apply to the implementation of all five of the ISMS Core Functions, whereas the remaining four guiding principles apply to specific Core Functions.

- 1) **Line Management Responsibility for Safety:** *Line management is responsible for the protection of the public, the workers, and the environment.*

This principle is primarily implemented by the requirements of MP1.22, *Integrated Safety Management System* and other sections of management policies and charters and Procedure Manual 1B, *the contractor*

Management Requirements and Procedures. In addition, specific procedures define line management actions and approval authorities that represent, for the subject matter covered by the procedure, managerial responsibility for safety.

- 2) Clear Roles And Responsibilities: *Clear and unambiguous lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels within the company and its subcontractors.*

this principle is implemented by MP 1.22, and other sections of the contractor-1-01; Procedure Manual 1B, *the contractor Management Requirements and Procedures*; and Procedure Manual 1Q, *Quality Assurance Manual*. Each procedure in the Integrated Procedures Management System contains a section that defines roles and responsibilities for the conduct of that procedure. Procedure Manual 1B, MRP 1.24, *Development, Review and Approval of Memoranda of Understanding/Memoranda of Agreement* is mechanism that is used when necessary to document agreements concerning division of programmatic responsibilities among organizations or functions.

Responsibilities of subcontractors are clarified by subcontract language, as appropriate. Where safety and other responsibilities between two DOE contractors need to be made clear, this DOE site uses Memoranda of Understanding (MOU). One example of that is the MOU between this DOE site, the contractor, and another contractor regarding Security and Support Services responsibilities.

- 3) Competence Commensurate with Responsibilities: *Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.*

this principle is primarily implemented through the requirements of Procedure Manual 4B, *Training and Program Qualification Manual*, Procedure Manual 5B, *HR Policies, Practices, and Procedures*, and Procedure Manual 1Q, *Quality Assurance Manual*.

- 4) Balanced Priorities: *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.*

This Principle, primarily implemented at the company level by the requirements of Procedure Manual 6B, *Program Management Manual*, most closely aligns with the first ISMS Core Function, Define Scope of Work.

- 5) Identification Of Safety Standards And Requirements. *Before work is performed, the associated hazards are evaluated and an agreed-upon set of safety standards and requirements are established which, if properly implemented, provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.*

this principle is primarily accomplished by selecting, based on the hazards analyses, the appropriate safety standards and requirements from the S/RID, developed according to Procedure Manual 8B, *Compliance Assurance Manual*. this principle most closely aligns with the third ISMS Core Function, Develop/Implement Controls.

- 6) Hazard Controls Tailored to Work Being Performed: *Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and the associated hazards.*

This Principle, supported by identification of safety standards (Principle 5 above) and the results of the Core Function 2 Hazards Analysis, is primarily accomplished by selecting the appropriate hazard controls that are incorporated into the design and operation of facilities and activities. *this principle* most closely aligns with the third ISMS Core Function, Develop/Implement Controls.

- 7) Operations Authorization: The conditions and requirements to be satisfied for operations to be initiated and conducted are clearly established and agreed-upon.

At the operating facility level, this principle is primarily ensured by compliance with the requirements in Procedure Manual 11Q, *the contractor Facility Safety Document Manual*, Procedure 1.08, *Authorization Agreements*; and Procedure Manual 12Q, *Assessment Manual*, Section 2, *Startup and Operational Readiness Assessments*. Authorization for work in the field to commence is integrated into the Hazard Analysis Process specified in Procedure Manual 8Q, 120. Before maintenance work (Procedure Manual 1Y) may commence in an operating facility, the Shift manager must release the facility/equipment by approving the Safe Work Permit (SWP). Similarly, Procedure Manual 8Q, 120 assigns authority, via an approved SWP, to commence work controlled by the D3 Manual for Utilities Operations and project, task-level, and other non-facility and stand-alone work. Work Control for site D&D project work (performed according to Procedure Manual 1C) is similarly addressed by a sub-tier procedure, C2, 2.05. Additionally, pre-job briefings are required before work may commence. This guiding principle most closely aligns with the fourth ISMS Core Function, Confirm Readiness and Perform Work Safely.

(d) **Protection of the Workers, the Public, and the Environment**

Operations on this site are conducted in a manner that protects workers, the public, and the environment. To establish a consistent approach by the entire site community, a *Site Workplace Safety, Health and Security Policy* was signed jointly by the top on-site officials of the following site organizations:

- Site office, Department of Energy;
- Site office, National Nuclear Security Administration (NNSA);
- The contractor;
- Contractor providing safeguards and security services;
- Site Environmental Laboratory; and
- U.S. Forest Service.

Because of the potentially far-reaching effects associated with the materials located at this site, many of the mechanisms employed by safety programs are directed toward protection of the public and the environment as well as the workers. Safeguards & Security support a broad safety role since many of the S&S requirements are focused on protecting safeguards and security interests from theft, diversion, industrial sabotage, radiological sabotage, toxicological sabotage, espionage, unauthorized access, loss, and compromise. Those and other hostile acts are treated by the ISMS similarly as hazards because they can cause unacceptable adverse impacts on national security, program continuity, and the health and safety of employees, the public and the environment. This section details how ISMS Mechanisms are specifically focused to protect the workers, the public and the environment.

Protection of the Workers

The worker safety-related programs used by the contractor, through the company level policies and procedures, ensure safety is integrated into all aspects of the work. The hierarchy of integrated worker protection program is depicted in **Figure 9**.

Various company-level procedures and manuals shown in **Figure 9** specify practices and requirements for worker safety. The worker safety elements include, but are not limited to: Procedure Manuals 8Q (*Employee Safety Manual*), 4Q (*Industrial Hygiene Manual*), 1Y (*Conduct of Maintenance*), 2S (*Conduct of Operation*), 5Q (*Radiological Control*), 2Q (*Fire Protection*), 18Q (*Electrical Safety*), 19Q (*Transportation Safety*), 13B, (*Chemical Management Manual*), the contractor-SCD-3 (*Nuclear Criticality Safety Program*), and the contractor SCD-6, *site ALARA Manual*. Requirements related to worker protection from

process hazards are addressed in Procedure Manual 11Q (*Facility Safety Documentation Manual*). Additional worker safety elements specific to construction work are addressed in Procedure Manual 1E6 (*Construction Management Department Manual*). Procedure Manuals 2S and 1Y contain provisions for alternate implementation methods for selected portions of those manuals for site utilities operations, facility decontamination and decommissioning, soil and groundwater closure projects, and other non-operating facility situations where certain features of 2S and 1Y are not appropriate. Those special provisions are approved and inserted into the respective Procedure Manual 2S or 1Y. The special provisions must meet S/RID requirements and be consistent with all company-level programs. At the activity level, implementation of the worker protection program is tailored to the activity/work according to Manual 8Q, Procedure 120, *Hazard Analysis*. That procedure invokes use of an Assisted Hazards Analysis (AHA) process to ensure the work is planned and conducted in a manner that meets S/RID requirements and is integrated with other company-level programs. The above policies and procedures address the requirements in the Rule. In addition to worker safety, many of the programs listed here also have features designed to protect the public and the environment.

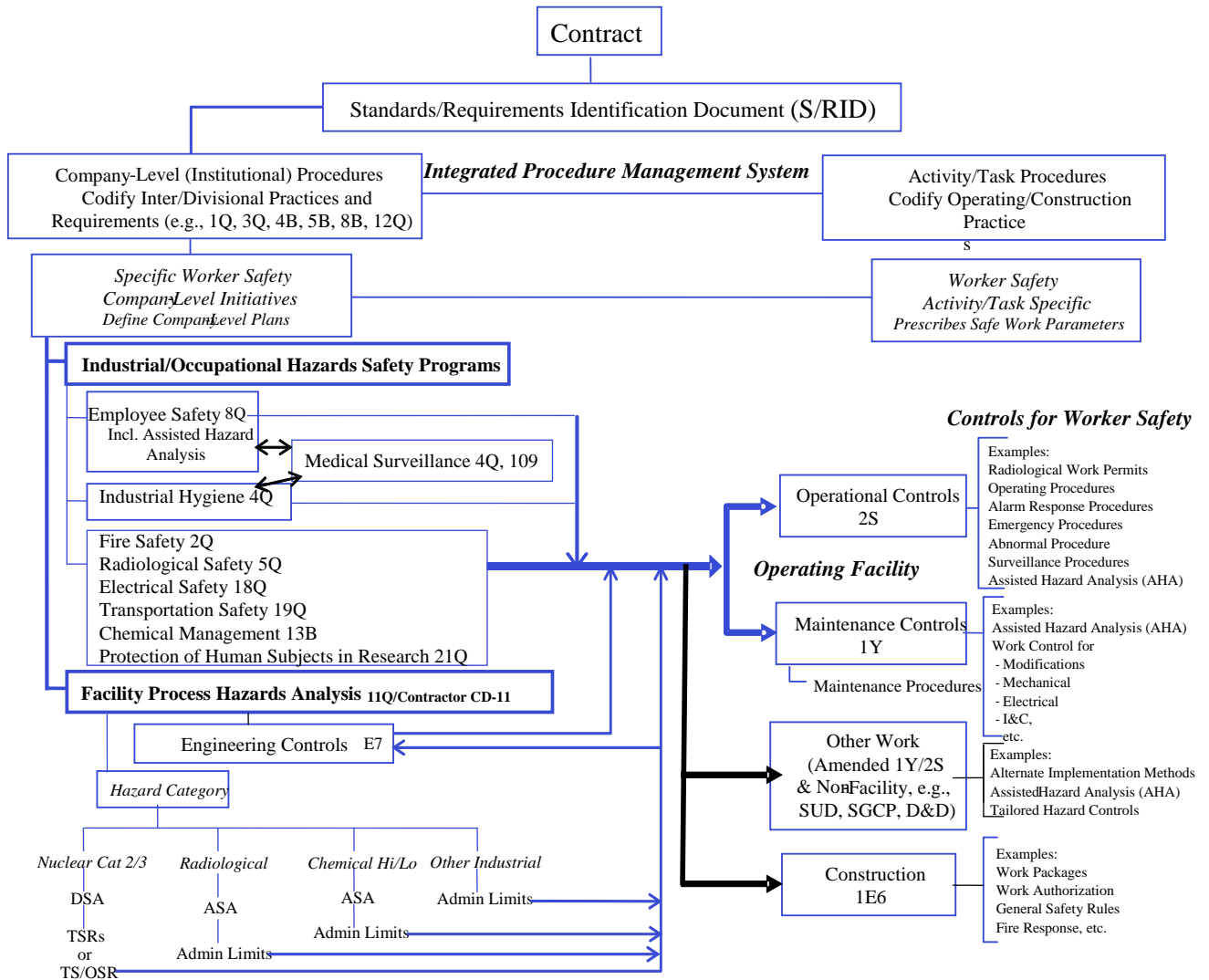


Figure 9. Site Worker Safety Program

The worker health -related programs used by the contractor, through the company level policies and procedures, ensure health is integrated into all aspects of the work. The Occupational Medical program provides key services to assure that individuals are qualified to perform work as well as provide assessments of the impact that work has on employee health. The Medical Surveillance Program, implemented by MP 4.3 Medical Programs and in collaboration with the Industrial Hygiene Procedure Manual 4Q, Procedure 109, is designed to identify and track physiological changes of workers exposed to occupational hazards. The roles and responsibilities are integrated among line management (having primary responsibility), the Field Industrial Hygiene staff, the Safety and Health Programs staff, the Medical Department, and the employees whose health must be

protected. Supervision is responsible to place personnel under their control into medical surveillance based on the Occupational Clinician and the Field Industrial Hygiene staff's determination of potential for employee exposure to chemical, physical, biological, or ergonomic hazards. The determination of hazard-specific medical surveillance for work groups is based on hazard assessments and exposure monitoring conducted at the worksite. The Medical Department is responsible for offering the appropriate medical surveillance of those personnel identified by supervision, and is responsible to inform supervision of all findings, and to inform Field Industrial Hygiene and Safety and Health Programs of any anomalies. Employees are offered medical surveillance and are required to conduct their work according to established procedures, to seek medical attention when necessary, and promptly to report all work-related injuries/illnesses and near misses. Occupational Clinicians, Field Industrial Hygiene staff and supervision work together to incorporate control measures for reducing exposures and otherwise improving working conditions. The Occupational Medicine program provides preplacement and medical certification evaluations to ensure that individuals are qualified to perform assigned work. Other medical program considerations, include recordkeeping and methods for validating, communicating, and using hazards and medical data for medical evaluations and worker exposure histories are integrated throughout Procedure Manual 4Q Medical Department internal procedures, and several other manuals, most notably Human Resources (Procedure Manual 5B) and Employee Safety (Procedure Manual 8Q).

ISMS is enhanced and supported by participation in the Voluntary Protection Program (VPP), a program that recognizes contractors that have excellent safety and health programs. The contractor was awarded "STAR Status" the highest VPP recognition category in November 2000. In November, 2003, a DOE-HQ-led team conducted a re-certification evaluation and STAR Status was recertified in February 2004. By design, VPP programs encourage individual responsibility, motivate employees to improve safety and health, and increase worker protection and morale. The five Key Areas of VPP are:

- 1) Management Leadership;
- 2) Employee Involvement;
- 3) Work-site Analysis;
- 4) Hazard Prevention and Control; and
- 5) Safety and Health Training.

The key areas of VPP are embedded in Integrated Procedures Management System (IPMS), most notably in the Procedure Manual 8Q. In terms of ISMS, the VPP "STAR Status" assessment resides in the fifth Function - Feedback/Improvement. The contractor has structured its Occupational Safety and Health Assessment Performance Objectives and Criteria in the contractor SCD-4 along the lines of the five VPP Elements. Therefore, conformance with the

desired VPP Elements is evaluated when organizations conduct Self Assessments and the Facility Evaluation Boards conduct independent oversight according to Procedure Manual 12Q, Assessments. This feature will enhance and continuously improve conformance to those VPP Elements on an ongoing basis.

Much of Work Control System (Procedure Manual 1Y, Procedure 8.20) was developed using the elements of an Enhanced Work Planning (EWP) process, a DOE initiative that later became the process for augmenting and implementing ISM at the task/activity level. Although EWP is no longer considered a separate program from ISM, the EWP key elements are characteristics of the Work Control System (Procedure Manual 1Y) and the Assisted Hazard Analysis (AHA) Process (Procedure Manual 8Q, Procedure 120) that is used for maintenance and non-maintenance work.

The following table illustrates the relationship among the elements of EWP and VPP and ISMS Functions and Principles, and it identifies mechanisms that implement those elements.

| EWP ELEMENT | ISMS FUNCTION, PRINCIPLE, or GUIDANCE | The contractor MECHANISM (also see Fig. 6) | VPP ELEMENT |
|--------------------------------|---|---|-------------------------------|
| Line Management Ownership | Line Management Responsibility for Safety (Principle # 1) | The contractor-1-01 selected Policies & Charters; Procedure Manual 1B & procedure manuals | Management Leadership |
| Worker Involvement | “managers and workers at all organizational levels should be involved in developing, maintaining, and improving the controls that must be applied...” (DOE G 450.4-1B, Sect. 1.1) | Site Workplace Safety & Health Policy, Procedure Manual 8Q, Assisted Hazard Analysis, Behavior-Based Safety | Employee Involvement |
| - - - | Analyze Hazards (Function # 2) | Procedure Manuals 11Q, 8Q-120 et. al. | Work site Analysis |
| - - - | Develop/Implement Controls (Function # 3) | Procedure Manual 8B, et. al | Hazard Prevention and Control |
| - - | Competence per Responsibilities (Principle # 3) | Procedure Manuals 4B, 5B, 1Q | Safety and Health Training |
| Graded Approach | Tailored Hazard Control (Principle # 6) (Tailoring Guide) | Procedure Manuals 8B, 11Q, E7, et.al. | - - - |
| Organizationally Diverse Teams | “ The Safety Management System should integrate ...among the different organizational elements.” (DOE G 450.4-1) | Procedure Manuals 8Q and 1B, MRP 3.26, et.al, Fifth Imperative: “Teamwork” & Committees/Councils | - - - |
| Organized Communication | Feedback/Improvement (Function 5) | Procedure Manual 12Q | - - - |

The Employee Involvement element is also enhanced via Behavior-Based Safety (BBS) initiatives. To augment and support the effectiveness of traditional safety programs, the concepts of Behavior-Based Safety (BBS) are valued and endorsed by senior management. Whereas traditional safety programs primarily focus on identifying and eliminating unsafe conditions and practices, the behavior-based safety process is focused on identifying and eliminating “at risk” behaviors of people that statistically account for 96% of all workplace accidents. The foundation of this process is to involve individual workers directly in eliminating their own at-risk behaviors through the use of positive reinforcement techniques. Implementation of the BBS Program is coordinated by the site Behavior-Based Safety Steering Committee, as described in Procedure Manual 8Q, Procedure 2. BBS Local Safety Improvement Teams work with their respective organization Safety Committees to address BBS implementation issues and specific safety matters at the organization or facility levels. A BBS database, accessible from the site e-mail system, is used by individual BBS Observers to log BBS Observations. The accumulated data is available for analysis and trending to identify behaviors that need to be addressed site-wide to improve site safety performance.

Although primarily targeted at improving employee safety, BBS techniques are also supportive continuous improvement initiatives. Conduct of Operations performance impacts worker safety as well as protection of the public and the environment. One example of an initiative that is targeted directly at Conduct of Operations performance improvements is First Line manager Leadership Development Training that introduces First Line managers to a broad spectrum of leadership concepts and practices designed to improve the effectiveness of supervisory oversight.

The contractor implements a Near Miss Program (Procedure Manual 8Q, Procedure 18), in which near miss incidents and minor injuries are reported and analyzed for corrective actions that may prevent the recurrence of similar incidents having potentially more severe consequences.

Protection of the Public

The contractor has programs designed to protect the public from process accidents or other events occurring at the site. Procedure Manuals 11Q (*Facility Safety Documentation Manual*) and 6Q (*Emergency Management Program Procedure Manual*), serve as focal points to integrate a number of additional ISMS mechanisms to help prevent and/or mitigate the hazards to the public associated with all site facilities and activities. A system of safety documentation is required by Procedure Manual 11Q to identify all process-related hazards and analyze the adequacy of the identified controls or defenses. *Conduct of Engineering and Technical Support Manual* (Procedure Manual E7), *Conduct of Operations Manual* (Procedure Manual 2S), and *Conduct of Maintenance Manual* (Procedure Manual 1Y) provide guidance for implementing those identified controls and defenses. Procedure Manual 8Q, 120 *Hazard Analysis* prescribes the Assisted Hazard Analysis (AHA) Process for identifying and controlling hazards, as well

as authorizing work for maintenance work in operating facilities. The AHA Process is also used for other types of task-level work not specific to operating facilities (e.g., Decontamination and Decommissioning, Soil and Groundwater Closure Projects, Utilities, and other non-facility and stand-alone work not controlled by Procedure Manual 1Y, Procedure 8.20).

The site Emergency Management Program Procedures Manual (Procedure Manual 6Q), along with the *site Emergency Plan* (the contractor-SCD-7), coordinate the emergency management aspects of the Fire Protection, Radiological Control, Environmental Management, Safeguards, Security, and Transportation Safety Programs among others, as well as providing the required coordination with offsite emergency planning and response authorities. Specific requirements that assure protection of the public from incidents involving hazardous and radioactive materials transported on site or shipped from site are addressed in *Transportation Safety Manual* (Procedure Manual 19Q).

Protection of the Environment

The *Environmental Compliance Manual* (Procedure Manual 3Q) contains the mechanisms for maintaining all of facilities and activities in compliance with all applicable federal, state, DOE, and local environmental requirements, and contains Programs for Pollution Prevention and Waste Minimization. Environmental Management System, fully integrated into ISMS, complies with DOE O 450.1, *Environmental Protection Program*. Additionally, a site Environmental Management System Policy was approved by the Senior managers of this DOE site office, this NNSA site office, the contractor, the contractor responsible for site safeguards and security, the site Environmental Laboratory, and the U.S. Forest Service All site organizations participate in a site-wide environmental program described in the *site Environmental Management System Description Manual*, G TM-G 00001, Rev. 3. As described above for worker and public safety, the engineering, operational, and maintenance controls provided by the *Conduct of Engineering and Technical Support Manual* (E7), *Conduct of Project Management and Control Manual* (E11), *Conduct of Operations Manual* (2S), *Conduct of Maintenance Manual* (1Y), *Facility Disposition Manual* (1C) are the primary mechanisms that ensure the site missions are achieved while protecting the environment. An example of commitment to Pollution Prevention and Waste Minimization is Procedure Manual E7, Procedure 1.41 *Pollution Prevention in Design*. That procedure provides the process, responsibilities and requirements for inclusion of Pollution Prevention into the design phases of new facilities and modifications to existing facilities. Properly applied, any additional cost incurred in design/construction to achieve Pollution Prevention and Waste Minimization objectives will be offset over the life of the facility by minimizing future waste management and environmental remediation cost.

A.6. ISMS DESCRIPTION CHANGE CONTROL PROCESS

The change control process for this descriptive section of the S/RID is the same as for any other portion of this S/RID, as described in S/RID Functional Area 00.

A.7. GLOSSARY

AA - Authorization Agreement: A documented agreement between DOE and the contractor that contains the terms and conditions that DOE relies on to determine that a nuclear facility can be operated safely and in compliance with all applicable laws and regulations relating to worker and public safety and protection of the environment.

AB – Authorization Basis Documents: The set of Safety Basis documents that must be approved by DOE.

AHA – Assisted Hazards Analysis

ALARA – As Low as Reasonably Achievable

CHAP – Consolidated Hazard Analysis Process

CMC – Chemical Management Center (formerly the Chemical Commodity Management Center)

CPB – Contract Performance Baseline (similar to the former AOP but for multiple years)

DCOP – Disciplined Conduct of Projects

DNFSB – Defense Nuclear Facilities Safety Board

DOE-EM – DOE Office of Environmental Management

DOE-NNSA – The part of DOE activities at this site with National Nuclear Security Administration Programs.

DOE site office – The part of Department of Energy site office not associated with NNSA

DOE site – A term used to include all DOE and NNSA site Operations

Clean-Up Incentives – Incentives similar to PBIs, except for clean up work only

ESH&QA - Environment, Safety, Health & Quality Assurance

FEB - Facility Evaluation Board, independent assessment organization

FOSC – Facility Operations Safety Committee

Hazard Analysis – A term used broadly in ISM to discuss all aspects of hazards identification and analysis, safety and accident analyses and associated documentation

IPMS – Integrated Procedure Management System

KPI – Key Performance Indicator

MCS – Management Control System

PAAA – Price Anderson Act Amendments

PBIs – Performance Based Incentives (similar to former Annual Operating Plan (AOP) except for multiple years – used for NNSA work under a contract)

QAMP – Quality Assurance Management Plan

SB – Safety Basis: The documented safety analysis and hazard controls that provide reasonable assurance that a DOE nuclear facility can be operated safely in a manner that adequately protects workers, the public, and the environment. (See AB above)

SGCP – Soil and Groundwater Closure Projects (formerly Environmental Restoration)

Intranet – site Information Network Environment – the site intranet

SPPC – site Policies and Procedures Committee

S/RID – Standards/Requirements Identification Document

SSSP – site Safeguards and Security Plan

STAR – site Tracking, Analysis, and Reporting database

SUD – site Utilities Department

SWP – Safe Work Permit

WA/EP – Work Authorization/Execution Plan under a contract (formerly Work Authorization and Performance Baseline (WAPB) and prior to that, Annual Operating Plan (AOP))

A.8. BIBLIOGRAPHY: DOCUMENTS CONTAINING ISMS MECHANISMS

(a) Management Policies (MPs) and Charters

MP 1.2 Management Policies, Requirements, and Procedure System

The contractor will establish and maintain a controlled system of written management directions in the form of policies, requirements and procedures. These management directions will govern the activities of the contractor

employees performing work under the prime contract with the Department of Energy (DOE) as well as those of its subcontractors.

Unless otherwise stipulated, the provisions of these policies, requirements, and procedures apply to the contractor and other members of the Performing Entity (as listed in the contract) for management and operations at this site and to subcontractors performing work for any member of the Performing Entity when required by contract or applicable law.

Written management directions provide the contractor and subcontractor employees with clear documented guidelines consisting of policies, work procedures, performance requirements, process or equipment operational limits, and rules of conduct. This policy gives Functional managers approval authority for company-level policies, procedures and processes. Line management is responsible for determining the need and initiating the preparation of operating procedures.

MP 1.11 Open Communication

The contractor recognizes that free and open expression of employee workplace issues and concerns is a fundamental characteristic essential to the safe, efficient and effective operation of this site. In order to safeguard employee and public health and safety, ensure compliance with applicable laws and regulations, and support mission to operate this site in a safe, efficient and cost effective manner, the contractor promotes and encourages open and honest communication of issues and concerns that have the potential for adverse affect on the site or its employees. It is the policy of the contractor that employees be allowed to identify and seek resolution of their workplace issues and concerns in a reprisal free environment, with the expectation that they will be fully addressed. The Employee Concerns Program (ECP) provides an independent and impartial avenue for the contractor and subcontractor employees to seek assistance in addressing concerns related to environmental, safety, health, quality, safeguards & security, waste/fraud/abuse, mismanagement, reprisal and other matters, where management systems or existing programs have failed to adequately address the issue, the employee genuinely fears retaliation should existing avenues be sought, or the employee requires anonymity.

MP 1.18 Employee Training

The contractor will provide training that supports employee performance of work assignments, and that contributes to the safety and formality of operations. All of training activities will be compliant with applicable DOE Orders, Federal and State laws/regulations, and training requirements, procedures, and policies. A graded approach to all training activities will be utilized to ensure training is developed, implemented, and evaluated in a cost effective, efficient manner. The Training managers Committee will advise management on site training needs, program goals, and priorities.

MP 1.22 Integrated Safety Management System

The contractor operates within a framework aligned with the principles and functions of Integrated Safety Management. The objective of ISM is to systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is accomplished through effective integration of safety management into all facets of work planning and execution. Stated more simply, the objective of the Integrated Safety Management System (ISMS) is to “Do Work Safely.” ISMS is the overall management system for conducting work under this contract, (hereafter referred to as the contract) including subcontracted work. ISMS satisfies all requirements of the DOE Policy 450.4, *Safety Management System Policy*, and DOE Acquisition Regulations (DEAR) clauses 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*, 970.5204-2, *Laws, Regulations, and DOE Directives* and 10 CFR 851 *Worker Safety and Health Program*. The DEAR clauses appear in the contract, whereas DOE P 450.4 and 10 CFR 851 appear in the *Standards/Requirements Identification Document (S/RID – the contractor-RP-94-1268)*. S/RID satisfies the requirements of DEAR 970.5204-2.

For the purpose of this policy, the term safety encompasses protection of the public, workers, and the environment, including safeguards and security, pollution prevention, and waste minimization. Since safeguards and security requirements are integrated into ISMS, the ISMS also satisfies the basic requirements of DOE P 470.1, *Integrated Safeguards and Security Management System (ISSM) Policy*. Additionally, the terms employees and workers include subcontractor employees.

This procedure applies to members of the performing entity for management and operations at this site, and to subcontractors performing work for any member of the Performing Entity when required by subcontract or applicable law.

This policy also establishes a mechanism for the contractor to meet the applicable requirements in support of contractual obligations. For a current list of Source Document references, go to the Standards/Requirements Identification Document (S/RID) webpage accessible through the site intranet.

MP 2.19 Workplace Violence Policy

This policy sets forth position that violence, threats of violence and intimidation, or coercion in the workplace will not be tolerated. goal is to provide a safe work environment that is free from violent behavior and threats of physical violence. Any occurrence of violent behavior or threat of physical violence is unacceptable conduct and is strictly prohibited. To assure a workplace free of violence or threats of violence, this policy is to be implemented at all work locations. This policy applies to all employees and/or applicants of the contractor and its partners. Additionally, this policy establishes responsibilities for appropriately responding to incidents of workplace violence.

MP 3.3 Procurement and Materials Management

The contractor will develop, implement and maintain a fully documented Procurement and Materials Management System, including subcontract management and field procurement engineering, in accordance with the contract. This system will provide for purchasing and asset management operations that will be conducted consistent with the highest standards of good business ethics and conduct, and in accordance with approved policies and procedures. Materials Management operations will be conducted in accordance with applicable laws, regulations, and directives.

MP 3.6 Transportation

The contractor will ensure all transportation functions are conducted in the safest and most cost effective manner. The contractor Transportation Program including: shipping and trucking operations, transportation support services, hazardous materials services, traffic services, mail services, driver safety compliance, centralized trucking and railroad operations, will comply with applicable U.S. Department of Transportation regulations and U.S. Department of Energy orders and directives. Overall guidance for implementing and maintaining the Transportation Program is provided in appropriate manuals and procedural documents.

MP 3.32 Earned Value Management System (EVMS)

The contractor will apply EVMS – an integrated management control system – to all work at site that is managed as a project. Use of EVMS will allow both the DOE and Program and Project managers to have visibility into cost, schedule, and scope/technical progress on their contracts for the purpose of performance measurement and management. The Facility Evaluation Board Project Review Team (FEB-PRT) will assess project compliance with established procedures (including ISMS implementing procedures).

MP 4.1 Environmental Assurance

The contractor will:

- Operate and maintain company-managed facilities in compliance with applicable laws, regulations and Department of Energy (DOE) directives for the protection of the environment, and the safety and health of personnel.
- Design, construct and operate new facilities in a manner that ensures that exposure of individuals and population groups to radioactive and other hazardous materials is as low as reasonably achievable (ALARA).

- Reduce to the maximum extent practicable the purchase and use of hazardous materials. Where such use is necessary; store, use, recycle, treat, and dispose of these materials in a manner that ensures appropriate protection for the environment and human health.
- Manage all facilities and activities in a cost-effective and environmentally responsible manner, minimizing the generation of all types of waste (non-hazardous, hazardous, radioactive, and mixed) and continually striving to reduce the load on waste treatment, storage, or disposal facilities by reducing the quantity or toxicity of waste.
- Establish a Process Ventilation Management Program to ensure that the site's process ventilation systems will perform their important role in minimizing employee exposures and unplanned environmental releases of airborne radioactive contamination and other hazardous materials.
- Establish a Refrigerant Management Program to provide site wide coordination for the reduction of chlorofluorocarbon (CFC) refrigerant usage and support required refrigerant containment practices.
- Identify and characterize all waste streams with sufficient accuracy to ensure regulatory compliance and to allow proper minimization, segregation, treatment, storage, and disposal.

MP 4.2 Quality Assurance

The contractor provides products and services which meet the requirements and expectations of our customers. Quality Assurance Program (QAP) will be implemented in a manner supporting implementation of: safety, disciplined operations, cost effectiveness, continuous improvement, and teamwork. This policy also establishes a mechanism for the contractor to meet the applicable requirements in support of contractual obligations.

MP 4.3 Medical Programs

The contractor will implement an employee medical program in compliance with applicable Department of Energy (DOE) requirements and federal and state regulation requirements. It is the policy of the contractor to provide a quality occupational health program that assures physical capable workers by providing preplacement, medical certification and surveillance services, provides assessment of the impact of work on employees health and that promotes the physical and mental well-being of our customers while maintaining medical information in a confidential, ethical and legal manner.

MP 4.4 Radiological Protection

The contractor will provide for the radiological protection of employees, other site contractor and subcontractor personnel, visitors, and members of the general public from radiation exposure originating from operations of the site. Radiation exposure of the work force and public will be controlled such that radiation exposures are well below regulatory limits, that there is no radiation exposure without commensurate benefit, and that it is maintained as low as reasonably achievable (ALARA) at all times. No person will take or cause to be taken any action inconsistent with the requirements of 10 CFR 835 or any program, plan, schedule, or other process established by 10 CFR 835. However nothing in 10 CFR 835 will be construed as limiting actions that may be necessary to protect health and safety.

MP 4.5 Nuclear and Process Safety

The contractor will manage this site in a manner that ensures there is no undue risk of nuclear and process accidents that could adversely affect the health or safety of employees, visitors, members of the general public or the environment. For all activities, the continued assurance of the capability and capacity for safe operations will remain paramount to protect facilities and the environment from unacceptable risks. (See also MP 6.10; Procedure Manual 11Q; the contractor-SCD-3)

MP 4.7 Occupational Safety Policy

The contractor will provide a safe, clean, working environment for employees, visitors, subcontractors, and the public that facilitates effective job performance and is in compliance with all applicable regulations and the philosophy of the DOE. Higher standards of care in the practice of occupational safety and health will be provided as needed for personnel or public protection, essential program continuity, or national security. The safety and health of employees will be of the highest priority of the contractor. Work will stop immediately rather than continuing unsafely.

MP 4.8 Control and Accountability of Nuclear Material

The contractor will implement and maintain a graded safeguards program to ensure that nuclear materials are protected, controlled, and accounted for; that safeguards programs are designed to meet defined threats; and that programs are effectively coordinated and integrated at all levels of operation. This policy will implement applicable Department of Energy (DOE) orders. The contractor will control and account for all nuclear materials which have been entrusted to it. This accountability requirement will be a paramount concern in all organizations that use or store nuclear materials.

MP 4.9 Integrated Safeguards and Security Management

The purpose of this policy is to formalize an Integrated Safeguards and Security Management (ISSM) framework. Safeguards and Security management systems provide a formal, organized process for planning, performing, assessing, and improving the secure conduct of work in accordance with risk-based protection strategies. These systems are institutionalized through Department of Energy (DOE) directives and contracts. The ISSM system framework encompasses all levels of activities and documentation related to Safeguards and Security management throughout the DOE complex.

Throughout this policy, the term ISSM includes all topical areas of safeguards and security (e.g., personnel, physical, information, nuclear safeguards, cyber security) and related cross-cutting areas (e.g., export control, classification, foreign visits and assignments, and foreign travel). ISSM will ensure the adequate protection of DOE assets (e.g., classified matter, unclassified sensitive matter, and U.S. Government property).

MP 4.10 Computer and Technical Security

The contractor will operate computer and telecommunications systems in a secure environment that stresses strict adherence to communications and operations security, test procedures, and technical surveillance countermeasures (TSCM). This policy implements applicable Department of Energy (DOE) orders.

The contractor will protect classified and sensitive unclassified data that is processed on computers and transmitted over telecommunication systems. To meet this requirement, the contractor will determine and apply the most cost effective computer security measures and train computer users in the use of all available and applicable safeguards. The measures chosen will be consistent with the available technology, processing, frequency, the classification level or sensitivity of data handled or produced, the environment in which the computer system operates, the degree of risk that can be tolerated, and other factor that may be unique to the system. Each employee and line manager will apply this policy in the conduct of daily activities, in developing plans and procedures, and in the construction of new facilities or installation of new equipment.

MP 4.11 Control of Classified and Sensitive Information

The contractor will protect classified and sensitive information through the use of the Information Resources Control (IRC) Program. This program will implement applicable Department of Energy (DOE) orders.

The contractor will comply with DOE orders and federal laws governing the receipt, storage, use, and distribution of classified and sensitive information. Documents or other materials developed in support of classified programs will be properly marked and protected. Line management will ensure that this policy is

considered in every aspect of their operations. Each employee will understand and comply with his responsibilities under this policy and ensure the compliance of all other employees.

MP 4.12 Emergency Preparedness

The contractor will provide for the continued safety of employees, other contractor personnel, visitors, and members of the general public during emergency conditions such as serious accidents or natural disasters. Preparations will be made to manage emergency conditions. This will include minimizing the risk of personnel injury and maintaining exposure of employees, the environment, and the public to radioactive or hazardous materials to a level as low as reasonably achievable (ALARA).

MP 4.15 Industrial Hygiene

The contractor provides a place and condition of employment that is free from, or protected against, recognized hazards that cause or are likely to cause sickness, impaired health and well-being, or significant discomfort and inefficiency among workers. This occupational health objective is achieved through a professional, comprehensive Industrial Hygiene (IH) program based on management commitment and employee involvement, worksite analysis, hazard identification, hazard prevention and control, and safety and health training

MP 4.16 Fire Protection

The contractor is committed to support a level of fire protection and emergency response capability sufficient to minimize the potential for accidental death, serious injury, and significant property losses from fire and related hazards consistent with the best class of protected property in private industry. The contractor provides a comprehensive fire protection program that achieves defense in depth for this site. Additionally, an emergency response capability is being maintained that will provide reasonable assurance that a sufficient number of emergency responders will arrive in a timely manner at the scene of any credible emergency with sufficient resources to effectively mitigate it. This includes emergencies involving casualties. This policy establishes that fire protection program will address the following objectives:

- Minimize the potential of occurrence of a fire or related event.
- Minimize the potential for a fire that causes an unacceptable on-site or off-site release of hazardous or radiological material that will threaten the health and safety of employees, the public, or the environment.
- Minimize the potential for accidental death and serious injury from fires and related events.

- Minimize the potential for vital DOE programs suffering unacceptable interruptions as a result of fire and related hazards.
- Minimize the potential for property losses from a fire and related events exceeding defined limits established by DOE.
- Minimize the potential for critical process controls and safety class systems being damaged as a result of a fire and related events.
- Provide an acceptable level of safety from fire and related hazards for DOE personnel, contractor personnel, and for the public to include appropriate facility and site-wide fire protection, fire alarm notification and egress features, and access to a qualified and trained fire protection staff, including fire protection engineers, technicians, and a fully staffed, trained and equipped fire department that is capable of responding in a timely and effective manner to site emergencies.

Specific support activities for organizations will be specified by memorandum of understanding. The specific requirements of this policy are met through implementation and enforcement of a comprehensive fire protection and emergency response program, which is documented in (insert reference(s) to applicable contractor fire protection and emergency response program documents. Example: Procedure Manual 2Q, Fire Protection Program Manual, other manuals in the 2Q series, and facility specific procedures.) This program is based on the site Standards/Requirements Identification Document (S/RID) which invokes applicable DOE orders, nationally recognized fire codes and standards, and accepted industry practices.

MP 4.20 Conduct of Operations

The contractor will establish and maintain a conduct of operations program to enhance the safe operation of its facilities. Conduct of operations will, as a minimum, apply to all programs and functions of its facility operations that may have an impact on the safety of the public, environment, and personnel. "Conduct of Operations" is defined here as the minimum acceptable level of performance expected of operations and support personnel that may affect safety.

MP 4.24 Protection of Human Subjects in Research

The contractor will implement a program to ensure that the rights and welfare of human research subjects are protected. All research involving human subjects conducted at this site, or by employees at other locations, will be conducted in accordance with requirements for protection of human subjects found in Department of Energy (DOE) regulations and other pertinent federal, state, and local laws or regulations. For the purposes of this policy, research is defined as systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge.

NOTE: The contractor does not conduct basic human experimentation, for example, research necessary to evaluate new treatments for cancer. However, to ensure that proper protection is afforded to individuals, the DOE applies the requirements for protection of human subjects to a wide range of situations that normally might not be considered human subjects research.

MP 4.25 Behavior Based Safety (BBS)

It is the policy of the contractor to establish and sustain a Behavior Based Safety (BBS) process to reduce workplace accidents. The BBS process promotes safe operation of site facilities through enhanced worker awareness. The BBS process supports the site's goal of world class safety performance and vision of an injury-free culture by promoting safe behaviors and eliminating at-risk behaviors.

MP 5.5 site and Facilities Management

The contractor will effectively manage all property and facility resources for which it has responsibility in accordance with corporate policies and guidelines, government regulations, DOE requirements, and procedures.

MP 5.7 Configuration Management

It is policy that configuration management be used in development, design, construction, start-up, maintenance, operation, and dispositioning of all nuclear facilities and for other facilities that will implement configuration management to help achieve full accountability and traceability in the areas of safety, environment, and health protection.

In accordance with this policy, configuration management of facility structures, systems, components (SSC) and process computer software, ensures that technical baseline documents completely and accurately state the SSC's functional, physical, and operational requirements and physical configuration satisfies the requirements stated in its technical baseline documents; and that processes are implemented to maintain compatibility between an SSC's requirements, technical baseline documents and physical configuration throughout the SSC's life cycle.

MP 5.20 Maintenance Management

The contractor will implement and maintain a safe and cost effective maintenance program for all assigned DOE site systems, structures, components and stand-alone assets.

MP 5.24 Facility Disposition

The contractor will conduct disposition of designated excess facilities and associated equipment in accordance with S/RIDS, applicable DOE Orders, and supplemental manuals as listed in the References. All related activities will be performed in a cost effective manner through systematic planning, scheduling,

execution, evaluation, and documentation to ensure the health and safety of the worker, the public, and the environment. This policy is applicable to all activities for facility disposition. Disposition begins when the DOE terminates facility operations for the purpose of a defense, research, or other mission and declares the facility excess (including process equipment and all associated assets) to the department's needs.

MP 5.27 Engineering and Construction Subcontracting

The contractor will support (DOE) contract reform initiatives in the areas of engineering and construction by implementing cost-effective strategies to maximize fixed-price task subcontracting. work control and daily planning practices will isolate tasks to the extent possible so that risks of subcontractor activities adversely impacting operations and/or operations adversely impacting subcontractor commitments and safety are minimized. Site management and overhead support will be minimized by maximizing the freedom of the contractor to perform defined tasks within isolation boundaries established through work control and the subcontract.

MP 5.35 Corrective Action Program

The contractor establishes and implements a company-level corrective action program that serves to correct and prevent recurrence of problems affecting personnel safety, operational safety, regulatory compliance or business operations. This program is required for managing problems that are identified through company-level deficiency identification processes, lower-level processes that result in documenting problems, and selected external processes that may result in identification of problems. The corrective action program includes the following elements:

- Problem Identification (including Extent of Problem determination);
- Significance Determination (basis for tailored approach);
- Problem Analysis (including Extent of Condition determination);
- Lessons Learned Evaluation;
- Corrective Action Development;
- Implementation and Closure; and
- Effectiveness Reviews.

Company-Level Processes

As a minimum, the following company-level deficiency identification processes are included within the scope of this policy:

- Problem Identification and Resolution (PIR) Process;
- Price Anderson Amendments Act (PAAA) and 10 CFR 851 Noncompliance;
- Occurrence Reporting System (ORPS) to include Department of Energy (DOE) Occurrences/Events Reportable & Non-Reportable Occurrences/Events within the specified Reporting Groups of the DOE Occurrence Reporting System;
- Quality Assurance (QA) Stop Work Orders (SWO);
- QA Audits/Surveillances;
- Management Assessments (that is, Self-Assessment, Performance Analysis);
- Integrated Safety Management Evaluations (that is, Facility Evaluation Board {FEB} evaluations); and
- Security Incident Inquiries.

Lower-Level Processes

Lower-level Business Unit/Facility/Project processes that result in identifying and documenting problems, as defined within this policy, are included within the scope of this policy. This includes, but is not limited to, problems identified through assessments, reviews, critiques, and other similar activities. However, it is not intended that this corrective action program be used to manage results from processes such as: worker injury/illness incidents (unless ORPS reportable), Behavior Based Safety observations data, or facility self-correcting processes.

External Processes

In addition to the above processes, results from the following DOE actions that serve as sources for the identification of problems, as defined within this policy, are included within the scope of this policy:

- Type A and Type B Accident Investigations;
- Operational Readiness Reviews (ORR);

- Reviews and Environmental Safety & Health (ESH) Stop Work Orders issued by DOE; and
- Office of Independent Oversight and Performance Assurance Program Assessments.

MP 5.36 Chemical Management

The contractor will:

- Establish and maintain a chemical management policy that is in compliance with all applicable regulations and site specific policies and procedures.
- Design, construct and operate new facilities in a manner that ensures that effective exposure of individuals and population groups to hazardous chemicals is acceptably below Permissible Exposure Limits and other published Occupational Exposure Limits.
- Reduce to the maximum extent practicable the purchase and use of hazardous chemicals. Where such use is necessary; store, use, recycle, treat and dispose of these chemicals in a manner that ensures appropriate protection for the environment and human health.
- Manage chemicals in all facilities and activities in a cost-effective and environmentally responsible manner while minimizing the generation of all types of waste.
- Establish and maintain a chemical excess program that seeks to reuse, sell or donate chemicals as an alternative to disposal.
- Establish chemical use programs that are in compliance with all applicable Occupational Safety and Health Administration (OSHA) regulations.
- Establish a Hazardous Material Transportation Program to ensure proper shipment of Department of Transportation (DOT) Hazardous Chemicals across public roads.
- Disposition all unwanted chemicals in an environmentally responsible manner

This policy establishes the Chemical Commodity Management Center (CCMC), which is responsible for—

- Establishing chemical management policy;
- Providing guidance for the site-wide management of chemicals;

- Establishing and maintaining site procedures for the site management of chemicals;
- Reviewing and approving chemical purchases while implementing controls on the purchase of Resource;
- Conservation and Recovery Act (RCRA) hazardous and OSHA chemicals to control site access to these chemicals, where appropriate;
- Managing Excess Chemical Program; and
- Managing Hazard Communication Program.

The Chemical Management Program will be consistent with the policy stated above and contractual provisions with Department of Energy (DOE). The formalized controls will be based on applicable DOE directives and applicable federal, state and local regulations. The Chemical Management Program will be kept current and will require prompt notification and incorporation of any relevant regulatory changes.

Charter 6.3 Maintenance Policy and Procedure Committee (MPPC)

The Maintenance Policy & Procedure Committee (MPPC) is responsible for providing site maintenance leadership, promoting excellence and cost effectiveness in the conduct of maintenance, resolving site-wide and programmatic maintenance issues, and sponsoring professional development of maintenance personnel. The MPPC is the site focal point for the development of site wide maintenance policy. Within its area of cognizance, this committee:

- Develops policies and procedures;
- Sponsors Maintenance Program Evaluations;
- Sponsors sub-committees to address specific maintenance issues;
- Identifies and approves programmatic improvements;
- Assesses and justifies impacts of policy and procedure changes to the site Policy and Procedure Council (SPPC);
- Reviews maintenance tailored approached ideas and implementation plans;
- Identifies/defines/oversees site maintenance goals, objectives, and strategic direction; and
- Establishes a regular and formal communication sub-committee that:

- Promotes safety,
- Includes interaction with other functional areas and site initiatives,
- Shares best practices, lessons learned and new technologies, and
- Receives input from and provides input to the SPPC.

Charter 6.8 site Fire Protection Committee (SFPC)

The site Fire Protection Committee (SFPC) is a standing committee responsible for overview and serves in an advisory capacity for the site Fire Protection Program. The SFPC is the means for site organizations to participate in formulating resolutions to fire protection issues. The SFPC establishes minimum and sufficient, cost-effective implementation procedures for site-wide fire protection issues, and provides development and oversight of Procedure Manual 2Q, *Fire Protection Program Manual*.

Charter 6.9 site ALARA Committee (SAC) & ALARA/ Radiological Awareness Subcommittees (A/RAC)

The site ALARA Committee (SAC) ensures that exposures to radiation and radioactive material are maintained at levels as low as reasonably achievable (ALARA) as defined in 5Q, Radiological Control. The committee reviews the overall conduct of the radiological control program to ensure continuous improvement. The ALARA/Radiological Awareness Subcommittees (A/RAC) of the site ALARA Committee are established as a multidiscipline forum for the line and support organizations. As line organizations are ultimately responsible for ALARA activities, these subcommittees provide a direct link to the work force with respect to radiological work being planned and performed.

Charter 6.10 Nuclear Criticality Safety Review Committee (NCSRC)

The Nuclear Criticality Safety Review Committee (NCSRC) implements site policy, provides for site coordination of nuclear criticality safety technical issues, procedures requirements, and practices; promotes nuclear criticality safety in the operation of facilities; and provides guidance in the area of compliance with appropriate criticality safety related Department of Energy (DOE) Orders and Standards. Business Unit/Area Criticality Safety Committees and the Nuclear Incident Monitor (NIM) Committee report to the NCSRC.

The NCSRC serves to:

- Provide reviews of management policies and procedures related to nuclear criticality safety to determine the degree of uniformity of standards of implementation and operation across the site and recommend changes as necessary.

- Recommend changes to management policies and initiates changes to procedures when deemed appropriate.
- Provide technical/policy consultation and advice to, and site level coordination of, the Business Unit/Area Criticality Safety Committees (CSCs), and the Nuclear Incident Monitor (NIM) Committee, and reviews technical, policy, and management issues identified by these committees at least annually.
- Investigate areas of criticality safety concern deemed significant by this committee and revalidate, as necessary, the status of criticality safety in facilities that have had to demonstrate that criticality safety controls are not needed.
- Identify issues and serve in an advisory capacity related to the training of the site's criticality safety support staff and formulate any necessary recommendations for improvement. (The staff includes those personnel who determine criticality safety limits, who ensure compliance with the limits, and who provide independent review of the products of these personnel.)
- Identify issues and serve in an advisory capacity related to the nuclear criticality safety training of site personnel.
- Develop a vision for nuclear criticality safety at the contractor and plans to achieve that vision.
- Respond to criticality safety issues and common problems related to facility conformance to DOE Orders.

The Facility managers Forum (FMF) is a site wide organization of managers representing field operating organizations. In the area of disciplined operations, the FMF recommends policy to senior management, integrates improvement initiatives or corrective actions, and exchanges lessons learned and best practices.

Charter 6.12 Quality Assurance Policy Committee (QAPC)

Quality Assurance Policy Committee (QAPC) provides the leadership and strategic direction for Quality Assurance (QA) Program. The QAPC also serves as the forum for discussion and resolution of company-wide quality matters.

The QAPC investigates, analyzes and acts on company-wide quality issues and initiatives. The QAPC members are the single points-of-contact that represent all Business Units in the development of company-level QA Program management policies, documents and procedures. The QAPC provides information and direction to quality assurance personnel and regularly communicates with the Department of Energy site Operation Office (DOE-SR) and National Nuclear

Security Administration (NNSA) Quality organizations on various quality assurance topics.

Specifically, the QAPC:

- Develops and recommends approval of Quality Assurance Policy (MP 4.2, “Quality Assurance”) and -RP-225, “Quality Assurance Management Plan (QAMP).”
- Ensures development of company-level quality assurance program documents and implementing procedures for consistent implementation by organizations using a graded approach.
- Identifies, defines and establishes the strategies and tactics for implementing Quality Assurance Program in a disciplined manner with a focus on continuous quality improvement.
- Provides leadership for the integration of QA program elements with other company-level programs such as Integrated Safety Management, Conduct of Operations, Engineering, Maintenance, etc.
- Provides liaison with other site-level organizations that are responsible for the direction of other portions of the QA Safety Rule – 10 CFR 830.120 Subpart A “Quality Assurance Requirements” and DOE Order 414.1B, “Quality Assurance.”
- Participates in assessments of QA Program.
- Reports the status of the QA Program to President and the Management Council.
- Elevates significant company-level QA issues to Senior Management for resolution.
- Charters standing subcommittees to perform specific activities and address specific issues and task teams to perform specific actions.
- Oversees the development of new programs and site initiatives that involve activities affecting quality.

Charter 6.13 Regulatory Compliance Committee (RCC)

The Regulatory Compliance Committee (RCC) is a site-wide committee that provides a forum for communication and resolution of site-wide issues regarding elements of Integrated Safety Management System (ISMS). The RCC consists of managers and senior personnel representing operating and support organizations. The RCC develops and revises company-level compliance assurance and

reporting procedures. The RCC provides information and direction to organizations and interfaces with the Department of Energy site office on various compliance and standards topics, including Price-Anderson Program matters.

Charter 6.15 Solid Waste Management Committee (SWMC)

Solid Waste Management Committee (SWMC) develops and approves solid waste policy, and makes recommendations to the site Policy and Procedure Council (SPPC) on other policies and initiatives that impact solid waste management. The SWMC provides a forum for communication and resolution of sitewide issues regarding elements of this site's solid waste programs. The SWMC's area of cognizance includes sanitary, low level, mixed, hazardous, and transuranic wastes but does not include high level waste programs as defined in DOE Order 435.1, Radioactive Waste Management.

Charter 6.17 Site Business managers Committee

site Business managers Committee (SBMC) provides company-level leadership, direction, and oversight for the integrated planning, budgeting, and execution of the contract Scope of Work. The SBMC is responsible for the overall planning and policies that ensure the integration of all business activity in a manner that maximizes corporate performance while enhancing the company's position with the customer for future work. This includes:

- The integration of:
 - Corporate and Business Unit (BU) strategies.
 - BU plans, schedules, and budgeting activities and execution schedules including the Yearly Fiscal Plans, the Work Authorization Execution Plan (WAEP), Out-Year plans, Life Cycle estimate submittals, and the associated Organization budgets.
 - Corporate-sizing and cost reduction programs.
 - Corporate business system training.
 - Corporate performance review processes.
- Providing issue resolution recommendations to Management Council and Corporate Change Control Board.
- Providing a forum for communication and resolution of cross-functional and cross-organizational issues both within and between the contractor and the Department of Energy (DOE).
- Developing priorities for resources.

- Reviewing projected government furnished services and items (GFSI) changes and analyze potential impacts on scope execution plans.
- Recommending and sponsoring process improvements for work execution.

Charter 6.18 Site Environmental Regulatory Integration Committee

This site Environmental Regulatory Integration Committee (ERIC) provides a structured setting for the management of the site's environmental management system and timely communications among Business Unit environmental managers. The ERIC provides a forum that will enhance the understanding of environmental hazards, requirements, and policies, achieve sitewide consistency in the implementation and integration of these requirements into facility operations, and improve cost effectiveness in the site environmental management system. The ERIC formulates environmental practices and implementation of regulatory requirements based upon subject matter expert interpretations of the regulations. Consideration will be given to best management practices and commercial benchmarks and will be tailored as required to meet applicable Department of Energy (DOE) and site unique requirements. In this regard, the ERIC's goal is to achieve compliance with regulatory requirements while addressing operational/economic constraints.

Charter 6.20 Safety and Health Review Committee

The Safety and Health Review Committee (SHRC) is chartered by the site Policy and Procedures Council (SPPC). The SHRC provides a vehicle for participation and communication among organizations with regards to all facets of safety and health policies and procedures. The SHRC acts as a forum among organizations for safety and health procedure requirements, development, management, training and use within the contractor.

Charter 6.25 Chemical Management Committee

This site Chemical Management Committee (CMC) provides a structured setting for programmatic review and ongoing development of the site's chemical management program. It provides a communications forum for the discussion and resolution of chemical management issues by Business Unit representatives. The CMC provides a forum that will enhance the understanding of chemical requirements and policies to help achieve sitewide consistency in chemical management, and enhance understanding of chemical management issues.

Charter 6.28 Training managers Committee (TMC)

The Training managers Committee (TMC) provides a vehicle for communications among training personnel associated with all organizations. The TMC is a forum for consistent programmatic integration of activities, problem identification and resolution, and policy development among Training Program manager and

Business Unit Training managers, with direct involvement of selected training professionals from across the site. The TMC provides assistance in the formulation and implementation of training policy and practices for the site are based upon requirements, best practices and benchmarks and are tailored as required to meet applicable DOE and site unique requirements.

Charter 6.29 Information Technology Steering Committee (ITSC)

Information Technology Steering Committee provides company-level, mission-centered oversight and focus for the planning, validation, and recommended investments in this site's information technology systems and infrastructure. The scope includes all information technology systems and infrastructure.

Charter 6.31 Project Management Committee (PMC)

The Project Management Committee (PMC) is responsible for fostering successful execution of projects and promoting overall excellence in Project Management. PMC serves as a management resource to support project teams and operations customers in meeting project commitments.

Charter 6.32 Conduct of Engineering Committee

The Conduct of Engineering Committee oversees the processes and procedures affecting conduct of engineering, engineering technical support, and configuration management on site. The Conduct of Engineering Committee is responsible for the development of processes, procedures, and appropriate training modules that apply cost effective applications to meet DOE requirements for the execution and control of nuclear and commercial/industrial designs and the methods to maintain those designs.

Charter 6.33 Authorization Basis Steering Committee (ABSC)

The mission of the Authorization Basis (AB) Steering Committee is to provide a forum for the identification and resolution of issues relating to the development, implementation, and maintenance of authorization basis related processes at site. The AB Steering Committee is a joint Department of Energy site office and Committee consisting of managers and senior professionals representing DOE-SR and operating and support organizations. The AB Steering Committee is responsible and accountable to the site Policy and Procedures Committee (SPPC), the site Chief Engineer, and the DOE site Safety and Radiation Protection Division Director. The AB Steering Committee develops and maintains Authorization Basis Implementation Documents for site. These documents:

- Record decisions of the AB Steering Committee for defining and implementing AB process activities at site that are not fully defined in

documents invoked through the Standards/Requirements Identification Documents (S/RIDs);

- Clearly define the level of consistency to be maintained in the AB processes and products;
- Clearly define who selects and approves the preferred alternative where alternatives in AB processes are available; and
- Implements site policy, provides interpretation, clarification, and direction, as necessary, to supplement criteria in DOE Orders, etc., to achieve the desired consistency.

The AB Steering Committee identifies issues with the AB process (or issues may be brought to the AB Steering Committee) develops resolution to those issues, and implements the improvements in the process.

Charter 6.34 Packaging and Transportation Committee (PTC)

The Packaging and Transportation Committee (PTC) oversees site practices associated with packaging and transportation of radioactive and non-radioactive hazardous materials. The PTC serves as the policy-implementing board for sitewide packaging and transportation, both onsite and offsite. Specifically, the PTC is responsible for oversight of Standards/Requirements Identification Document (S/RID), Functional Area 13 and -SCD-4, Assessment Performance Objectives and Criteria, Functional Area 19.

Charter 6.35 Procurement Specification Committee (PSC)

The Procurement Specification Committee (PSC) is a standing committee that oversees development of and revisions to procurement specification procedures and addresses issues related to the procurement process and recommends solutions.

Charter 6.36 Engineering Standards Board (ESB) and Technical Committees

The Engineering Standards Board (ESB) oversees site policy for the development, maintenance, and application of current codes and standards in conformance with applicable Department of Energy (DOE) Orders. The EBS is responsible for establishing operating policy for the site engineering standards program, establishing technical committees and defining technical scope responsibilities for these committees, sponsoring the development and revision of the site Engineering Standards Manual (site ESM) and site Engineering Practices Manual (site EPM), and issuing site ESM and site EPM documents as controlled distribution documents.

Charter 6.38 First Line managers (FLM) Advisory Committee

The First Line managers (FLM) Advisory Committee provides independent review, assessment, and approval of revision to all policies, procedures, and programs that impact FLM job function, and provides for uniform communication of critical information to all FLMs. The Committee provides a forum for communication of FLM issues and concerns to senior management, and for generation of a timely response.

Charter 6.41 Planning, Scheduling, and Controls Committee (PSCC)

The Planning, Scheduling, and Controls Committee (PSCC) is a site-wide committee that provides a forum for the development and maintenance of a site-wide planning, scheduling, and controls process for the contractor. The specific charter of the committee is to:

- Ensure that the contractor has a site controls process for providing the cost and schedule direction to plan, analyze, coordinate, and monitor the current and future missions, and allow a consistent and concise reporting capability.
- Define site integration process for all levels of cost and schedule controls.
- Prepare formal procedures and/or desktop guidance for site scheduling and controls systems.
- Coordinate the development and implementation of procedures and standards that have site wide implications.
- Standardize controls software, hardware, training and services that have cross-organizational impacts.

The committee serves as a clearinghouse to provide coordinated efforts to develop, research, and implement Controls needs for the site in cooperation with all Business Units.

Charter 6.42 Workforce Planning Committee (WPC)

Workforce Planning Committee provides strategic guidance and direction for the management of the work force, and ensures processes and programs to facilitate work force restructuring are developed and implemented. The Workforce Planning Committee has oversight responsibility for all workforce-related activities pertaining to staffing or resource driven initiatives.

Charter 7.5 Management Council

Management Council is the senior management entity advising President and Executive Vice President on key policy decisions of site wide impact. Management Council will make recommendations that affect employee development, business strategies, financial performance, and operational excellence to executive management for final approval. President sponsors and chairs Management Council. The Executive Vice President and Business Unit Directors reporting to the President are members. The only membership substitutions are Deputy managers or designated alternates.

(b) **1B Management Requirements and Procedures (MRPs)**

Procedure Manual 1B, MRP 1.06 Employee Concerns Program (ECP)

In accordance with policy on "Open Communication", employees are encouraged and expected to identify and seek resolution of their workplace issues and concerns such that employees and management can work together to resolve these issues in an equitable and professional manner. Employees are expected to express their concerns directly to their supervision or management, or through the appropriate avenue, program or service as is available to address specific workplace issues. Employee Concerns Program (ECP) is available to assist employees in seeking resolution of their workplace issues and concerns if resolution through the established channels cannot be achieved, the employee fears reprisal should existing avenues be sought, or the employee wishes to remain anonymous. The ECP provides an independent and impartial avenue for the contractor and onsite subcontractor employees to seek assistance in addressing concerns related to environmental, safety, health, quality, safeguards & security, waste/fraud/abuse, mismanagement, reprisal and other matters under the above noted conditions. This procedure establishes the guidelines for expressing and responding to workplace issues and concerns that are identified to ECP in accordance with the open communication policy.

Procedure Manual 1B, MRP 1.24 Development, Review and Approval of Memoranda of Understanding/Memoranda of Agreement

This procedure provides guidance in developing a Memorandum of Understanding (Agreement) (MOU/MOA) for interfacing organizations, should such an agreement become necessary. MOUs/MOAs are developed and used whenever organizational interfaces between Business Units/Departments or organizations/functions require clear, written definition of responsibilities not addressed in established procedures. This procedure does not apply to outside subcontractors. Generally, an MOU/MOA will be necessary when performing or receiving services inside another facility, using that facility's resources, or interfacing with the facility's systems or equipment. MOUs/MOAs do not replace or contradict approved procedures and are not intended to "authorize" work. They are not to be used to provide work instructions.

Procedure Manual 1B, MRP 3.01 Integrated Procedure Management System (IPMS)

This procedure defines Integrated Procedure Management System (IPMS) and applies to the development, numbering, and processing of all procedures, policies, and source and compliance documents. MRP 3.26, "Management of Company-Level Policies and Procedures," MRP 3.27, "Management of Program-Specific Procedures," and MRP 3.32, "Document Control" define the requirements and provide the methods for preparation, processing, and control of company-level and program-specific procedures.

Procedure Manual 1B, MRP 3.26 Management of Company-Level Policies and Procedures

This procedure establishes responsibilities and requirements for the preparation, review, approval, revision, and cancellation of company-level policies, procedures, and charters. Company-level procedures set responsibilities for site Business Units in addition to the authoring Business Unit; consequently, the responsibility (accountability) for complying with the procedure rests with all affected Business Units. This procedure outlines the roles and responsibilities of the site Policies and Procedures Committee in the procedure review and approval process. The provisions of this procedure apply to the contractor and other members of the Performing Entity, as listed in the contract, for management and operations at the site, and to subcontractors performing work for any member of the Performing Entity when required by contract or applicable law - that generate or process company-level policies, procedures, and charters. For other procedures addressing procedure management:

- Procedure Manual 1B, MRP 3.01, *Integrated Procedure Management System (IPMS)*, explains the numbering system used to maintain the functional hierarchy of procedure manuals.
- Procedure Manual 1B, MRP 3.27, *Management of Program-Specific Administrative Procedures*, contains information about processing administrative procedures at the program-specific level.
- Procedure Manual 2S, *Conduct of Operations*, provides requirements for the generation and processing of program-specific technical and response procedures.

Procedure Manual 1B, MRP 3.27 Management of Program-Specific Procedures

This procedure serves to establish responsibilities and requirements for preparation, review, approval, revision, and cancellation of program-specific administrative procedures. Program-specific procedures are procedures (Business Unit/department/section/group), excluding company-level that provide detailed,

step-by-step, sequential actions and a prescribed, auditable method of completing a particular process or task (technical or administrative). These procedures do not set requirements for Business Units other than the one authoring the procedure. The provisions of this procedure apply to the contractor and other members of the Performing Entity, as listed in the contract, for management and operations at the site, and to subcontractors performing work for any member of the Performing Entity when required by contract or applicable law - that generate or process program-specific administrative procedures. For other procedures governing procedure management:

- MRP 3.26, "Management of Company-Level Policies and Procedures" - addresses development and processing of company-level procedures.
- MRP 3.01, "Integrated Procedures Management System (IPMS)" - explains the numbering system used to maintain a functional hierarchy of procedure manuals.
- Procedure Manual 2S, Conduct of Operations Manual - provides requirements for the generation and processing of program-specific technical and response procedures.

For those organizations with a very limited number of procedures or only administrative procedures (i.e., do not have operations and maintenance responsibilities for facilities and operating systems), MRP 3.26 can be used to fulfill format and process requirements. It will be understood that any statements in MRP 3.26 referring to senior staff are replaced by the organization's appropriate level of personnel.

Procedure Manual 1B, MRP 3.31 Records Management

This procedure establishes responsibilities and requirements for compliance with applicable U. S. Department of Energy (DOE) requirements relating to records management. The contractor is responsible to provide a comprehensive records management program that meets business purposes and the legal requirements for records, including receipt, validation, scheduling, and tracking of records.

Procedure Manual 1B, MRP 3.32 Document Control

This procedure establishes responsibilities and requirements for compliance with applicable U.S. Department of Energy (DOE) requirements relative to Document Control. The provisions of this procedure apply to members of the Performing Entity for management and operations at this site, and to subcontractors performing work for any member of the Performing Entity when required by contract or applicable law for the preparation, processing, and utilization of unclassified documents, which require controlled distribution to ensure the current versions are in place, and in use.

Procedure Manual 1B, MRP 4.03 Site Remote Worker Notification

This procedure provides guidance to all personnel who may be engaged in work in a remotely located area within the boundaries of this site. This procedure ensures all personnel working in remote areas are accounted for and can be immediately notified of radiological and/or toxic chemical releases, severe weather, and other dangers or natural disasters affecting personnel safety. This procedure also provides guidance for remote workers to request emergency response from the site Operations Center (site OC) in case of injury or some other emergency occurring at their work site.

Procedure Manual 1B, MRP 4.14 Lessons Learned Program

This procedure establishes the responsibilities and actions required for implementing Lessons Learned Program. This program promotes safe, effective operation of site facilities and enhances the safety and health of site employees and the public by applying the lessons learned from the systematic review of operating experience at site facilities, and of similar Department of Energy (DOE) complex and commercial nuclear industry facilities. The procedure administers Lessons Learned Program in the areas of quality, process safety, and personnel safety and health. Process safety not only includes conditions causing degradation of operations and equipment, but also those conditions capable of negative impact on the environment and public confidence.

Procedure Manual 1B, MRP 4.19 Requirements for Facility Operations Safety Committees

This procedure provides requirements for the Facility Operations Safety Committee (FOSC). NOTE: the FOSC is a generic title to denote a facility or organizational level of committee. If committee titles have already been established, they need not be changed; however, the functionality must conform to this procedure.

This procedure applies to the chairperson, secretary, members, alternates and interfacing personnel for the above committees and addresses function, membership, qualifications and training, and meeting requirements to provide consistent site wide application of advice and expertise. This procedure applies only to Hazard Category 1, 2 and 3 Nuclear Facilities, as defined in Procedure Manual 11Q, Facility Safety Document Manual.

Procedure Manual 1B, MRP 4.21 Problem Identification and Resolution Process

This procedure provides the process for identifying and resolving problems identified with and/or through the following activities and processes to meet the requirements of Policy Manual 1-01, Management Policies, MP 5.35, "Corrective Action Program":

- Quality Assurance Program (QAP) requirements (including Quality Assurance {QA} Audits and Surveillances)
- Radiological Protection (RP) Program requirements
- Occurrence Reporting System (ORPS) to include Department of Energy (DOE) Occurrences/Events Reportable & Non-Reportable Occurrences/Events within the specified Reporting Groups of the DOE Occurrence Reporting System

Individual Business Units may use this procedure for any additional areas within MP 5.35 Scope or as a replacement for current Business Unit-specific deficiency identification and management process. See Policy Manual 1-01, Policy 5.35, Attachment B, “Corrective Action Program Applicability Matrix,” for a detailed listing of the above. Note: Upon full implementation of MRP 4.23 STAR below by all organizations and projects, MRP 4.21 will be cancelled.

Procedure Manual 1B, MRP 4.23 site Tracking, Analysis, and Reporting (STAR)

This procedure provides the process for documenting identified problems and managing their resolution to meet the requirements of Policy Manual 1-01, *Management Policies*, MP 5.35, “Corrective Action Program,” and other facility/organization/project commitments and actions (i.e., non-problems) not associated with MP 5.35. This procedure is implemented using a site wide database system called “site Tracking, Analysis, and Reporting (STAR).” The STAR system is an electronic format where problems are entered, analyzed, processed, and associated actions tracked to closure. STAR is a paperless system that features routing and notification via electronic mail, electronic signature (approval), and electronic records (where applicable). A detailed User’s Guide that describes the methods for processing a STAR, is available on the STAR Webpage accessible through the site intranet.

(c) Company-Level Manuals

Procedure Manual 4B Training and Qualification Program Manual

The contractor is committed to having a well-trained and competent workforce at this site. In order to accomplish this commitment, Manual 4B, Training and Qualification Program, was developed to establish standards to ensure workforce maintains the appropriate training for safe operations in a consistent and cost-effective manner. The standards included in this manual comply with the requirements of applicable DOE Orders.

Procedure Manual 5B Human Resources Manual

T management believes in equality and advancement opportunities for all employees and applicants regardless of race, color, religion, gender, age, national origin, disability or veteran status, and desires to create an environment that values diversity and maximizes human resources utilization. The contractor is committed to filling vacant positions with the best-qualified applicants. The contractor recognizes that continued success depends on developing and using the full range of human resources available to it.

Procedure Manual 6B Program Management Manual

This Manual provides site Management Control System (MCS) description and implementing procedures for the contractually invoked DOE-site Strategic Plan and EM Performance Management Plan (PMP). site MCS defines requirement and processes for site planning, budgeting and integration. It establishes MINIMUM requirements and criteria for Business Unit programs and Business Unit development of scope, schedule, budget and performance metric development to allow site prioritization and integration of scope, schedule, budget and performance metrics. The Work Authorization/Execution Plan is implemented for NNSA work. NNSA performance will be evaluated against Performance Based Incentives, whereas EM work will be evaluated against DOE Headquarters Clean-Up Incentives that are established in relation to the contract Performance Baseline.

Procedure Manual 7B Procurement Management

This manual defines the requirements for preparation, review, approval, and control of purchase requisitions for all procurements for the contractor. This manual covers activities related to preparing and processing purchase requisitions and related documents to define technical, quality and schedule requirements for any type of proposal, quotation and request for procurement of materials and services from sources outside of the contractor. This manual requires the "Subcontract Safety Checklist" for on-site services requisitions, and the "Subcontract Field Conditions" form for on-site services work determined to be hazardous from completion of the Subcontract Safety Checklist. This Manual refers to the contractor 8Q for implementing the Worker Protection Program for Subcontracted Services. See Procedure Manual 11B below for information regarding management of subcontracts after the subcontract has been awarded.

Procedure Manual 8B Compliance Assurance Manual

It is both the policy and obligation of the contractor to conduct its assigned operations and related programs at site in full compliance with all applicable rules, regulations, and directives. This manual defines and describes a single comprehensive Compliance Assurance Program that applies broadly to all operations and related programs for this express purpose. Compliance Assurance

Program encompasses general overall compliance but has emphasis on those requirements relating to public and worker safety and the protection of the environment as defined in the S/RID. A procedure in this manual establishes site-wide processes for identifying, evaluating, reporting and tracking Price-Anderson Amendments Act (PAAA) and 10 CFR 851 noncompliance and associated corrective actions with Department of Energy (DOE) nuclear safety requirements. This manual defines the administrative processes for maintaining the S/RID and non-S/RID requirements bases.

Procedure Manual 9B site Item Reportability and Issue Management

Procedure 1-0, *Occurrence Reporting*, is used to implement an occurrence reporting program to ensure appropriate and timely identification, categorization, response, notification, investigation, reporting, and analysis of abnormal conditions and events in accordance with Department of Energy (DOE) Manual (M) 231.1-2, *Occurrence Reporting and Processing of Operations Information*, as committed in Standards/Requirement Identification Document (S/RID). To streamline the process and eliminate unnecessary duplication of material from the DOE directive, portions of DOE M 231.1-2 committed through the S/RID that are appropriate and technically accurate for direct use are incorporated by direct reference into this procedure. For these instances, the user is sent to the applicable portions of DOE M 231.1-2 through the S/RID webpage accessible through the site intranet. The provisions of this procedure apply to members of the Performing Entity for management and operations at this site, and to subcontractors performing work for any member of the Performing Entity when required by subcontract or applicable law.

Procedure Manual 11B Subcontract Management Manual

The primary responsibility of Procurement and Materials Management is to provide for the purchase of materials, services and supplies with the objective that they be available at the time, place, quantity, quality, and price consistent with the needs of the contractor and this site. Subcontract Management is part of the balancing of several factors that are critical to the success of the contractor in meeting goals and satisfying its customer(s). Subcontract management includes all relationships between the contractor and the subcontractor that grow out of subcontract performance. It encompasses all dealings between the parties from the time the subcontract is awarded until the work has been completed and accepted, all badges have been returned, government furnished equipment has been returned, payment has been made and disputes have been resolved. This manual is established to set subcontract management standards and requirements that are to be used at site. This manual includes incorporation documents (ID) which define the location of requirements and responsibilities of the subcontract management program that are appropriately located in other company-level procedure manuals. This manual contains the program for subcontract technical representatives (STRs).

Procedure Manual 12B Information Management Manual

This manual establishes the responsibilities for the Information Management Program. The requirements are identified in DOE Order, 200.1, *Information Management Program*. Among other topics related to business aspects of information management, this manual addresses software management methodology with appropriate emphasis on the implementation of Software Quality Assurance, software quality controls, and computer security requirements.

Procedure Manual 13B Chemical Management Manual

This manual defines major elements of a chemical safety management program for the contractor, as integrated into the following activities:

- Site Request of Chemicals

This procedure defines the responsibilities and requirements for site organizations requesting chemicals. The provisions of this procedure apply to members of the Performing Entity for management and operations at this site, and to subcontractors performing work for any member of the Performing Entity when required by subcontract or applicable law, whose operations request chemicals.

- Receipt, Storage, and Inventory of Chemicals

This procedure defines the responsibilities and requirements for the receipt of chemicals and the maintenance of the site chemical inventory. This procedure also addresses storage issues related to receipt and inventory of chemicals, in order to comply with the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, Emergency Planning and Community Right-To-Know Act (EPCRA), and the site chemical management program.

- Site Hazard Communication Program

The purpose of this procedure is to inform employees how the provisions of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) are implemented at this site. The provisions of this procedure apply to members of the Performing Entity for management and operations at this site, and to subcontractors performing work for any member of the Performing Entity when required by subcontract or applicable law.

- Excess Chemical Program

This procedure provides requirements for the review and disposition of non-radioactive excess chemicals and chemical products at this site. The

provisions of this procedure apply to members of the Performing Entity for management and operations at this site, and to subcontractors performing work for any member of the Performing Entity when required by subcontract or applicable law. This procedure applies to all site organizations that utilize chemicals and/or products containing chemicals.

- Compressed Gas Cylinders: Purchasing, Handling, Storage and Use

This procedure establishes requirements for the purchasing, handling, storage, and use of compressed and liquefied gases in portable cylinders at this site. This procedure is currently under revision to comply with an updated NFPA requirement that applies to cryogenic liquids, which have normal boiling points below -130°F (-90°C).

- MSDS Maintenance and Availability Requirements

This procedure establishes requirements for the maintenance and availability of this site's Material Safety Data Sheets (MSDSs) to comply with Occupational Safety and Health Administration (OSHA) Hazard Communication Standard requirements as given in 29 Code of Federal Regulations (CFR) 1910.1200 (General Industry), 29 CFR 1926.5 (Construction), and 29 CFR 1910.1450 (Hazardous Chemicals in Laboratories).

Procedure Manual 1C Facility Disposition Manual

The program described in this manual uses a graded approach to requirements during the disposition phase of the facility life cycle. The program allows for consideration of differences among facilities, and it provides a method for determining the extent to which actions are appropriate for that facility. The depth of detail and the magnitude of resource expenditure for each program element are commensurate with that element's relative importance to safety and the magnitude of the hazards involved. The program outlined in these procedures represents the ideal case, where it is recognized in advance that a facility has reached the end of its useful life and steps are taken to initiate disposition. In addition to this ideal case, there have been and will continue to be facilities that are already inactive, but for which no consideration has been given to disposition of the facility. As these legacy facilities are identified, they will be evaluated as to their current condition and hazards, and inserted into this program wherever appropriate, without any major effort to back-fit previous steps or deliverables. The planning and execution for the disposition of excess facilities and/or associated equipment will be conducted using project management principles with a graded approach through the following life cycle phases:

- Transition from Operations;
- Deactivation;

- Safe Storage (Awaiting Decommissioning);
- Decommissioning; and
- Final End State and Close Out.

Procedure Manual 3E Procurement Specification Procedure Manual

This manual contains information to be used when developing or processing procurement specifications. A "Specification" used in a procurement activity is a type of procurement requirement which requires a higher level of attention. For purposes of this manual, the term specification signifies a design document used to provide a detailed description of requirements of items and/or services including installation. This manual establishes the process used to identify the functional, technical, and quality requirements associated with an item or service that is to be obtained through a procurement activity. This manual also establishes the requirements for the preparation, review, approval, and control of documents used to specify requirements for procurement of items and services at site. This manual invokes use of the site Requirements for Services Subcontracted Scopes (SR3S) database for procurements that require subcontractors to perform work at site. The SR3S database serves to assist preparers of subcontract Statements of Work (SOW) to address applicable S/RID requirements to be flowed down in subcontracts. Interpretation and maintenance of this manual is the responsibility and authority of Engineering Standards Section of the Technical and Quality Services Department.

Procedure Manual 5E Startup Test

Startup Test Manual was developed to provide guidance and identify requirements for an initial facility startup or restart testing program and to establish uniformity and consistency in methodology for the development and implementation of the test program activities. This manual applies to all organizations that perform Startup or Restart testing activities on site facilities as governed by the Startup and Restart Operational Readiness requirements contained in the Procedure Manual 12Q.

Procedure Manual 1Q Quality Assurance Manual

This manual, under the auspices of the Quality Assurance Policy Committee (QAPC), 1-01 Charter 6.12, describes the requirements, responsibilities, and controls for implementing and maintaining Quality Assurance (QA) Program. The contents of this manual are responsive to the requirements of DOE Order 414.1B, 10CFR830 Subpart A, *Quality Assurance Requirements*, and to Quality Assurance Management Plan (QAMP, -RP-92-225). The integration of the Quality Assurance Program into ISMS is addressed in this manual and in the QAMP. The procedures contained in this Manual define company-level requirements for quality achievement, verification, and improvement. As such,

these apply to all activities associated with providing the products and services to the DOE. Some procedures may be used without further elaboration. Others may require the development and use of organization-specific implementing procedures. In the event that lower-tier implementing procedures are used, the organization must maintain an appropriate cross-reference (e.g., matrix) to assure and demonstrate continuing alignment of the implementing procedures with the applicable requirements of this Manual. It should also be noted that other company-level Manuals and procedures are linked to the QA Manual. These provide additional guidance and requirements for accomplishing specific tasks or activities, e.g., engineering, procurement, records management, etc.. Where subcontractors are expected to work to these procedures, it will be stated in the applicable procurement documents.

Procedure Manual 2Q Fire Protection Program

This manual provides overall direction and guidance to organizations and site personnel responsible for implementation of Fire Protection Program, including the conduct of Fire Hazards Analyses (FHAs). This manual also establishes responsibilities to provide interpretation and assistance to ensure compliance with -RP-94-1268-012, Standards/Requirements Identification Document (S/RID) for Functional Area 12.0, Fire Protection and NFPA codes affecting fire protection to minimize losses from fire and related perils and ensure that safety objectives are met.

Procedure Manual 3Q Environmental Compliance Manual

This manual provides guidance and, when necessary, detailed information concerning proper procedures and activities as prescribed by federal, state, and local laws and regulation, Department of Energy (DOE) orders, and polices. This manual invokes Environmental Management System (EMS) that applies the principles and specific requirements of the ISO 14001 Standard in conduct of activities associated with environmental protection. Environmental Protection Program is in compliance with DOE O 450.1, *Environmental Protection Program* and Executive Order 13148, *Greening the Government Through Leadership in Environmental Management*. Failure to comply with these laws and regulations can result in actions including findings, notices of violation, fines, and criminal suits or civil suits from the public. The Environmental ALARA Program is documented in Manual 3Q1-2, Procedure 1100, and results are monitored by Monthly Radiological Releases Reports per Manual 3Q1-9, Procedure 1040.

Procedure Manual 4Q Industrial Hygiene Manual

This manual establishes the mission of the Industrial Hygiene (IH) program managed by Industrial Hygiene Programs Section to prevent occupational illnesses and preserve the health of site employees in accordance with Department of Energy (DOE) Orders and DOE-prescribed occupational safety and health (OSH) standards. The Integrated Exposure Assessment Program establishes

requirements for performing and documenting exposure assessments for chemical, physical, and biological agents. The hazard prevention and control procedure assures effective engineering, work practice, and administrative controls to control/reduce employee exposure to occupational hazards. Also, the Health (Medical) Surveillance Program and two specialized IH Programs addressing lead and beryllium are defined in this manual, as well as the Chemical Control Program that includes a Chemical Hygiene Plan. Some of the additional programs defined by this manual include Laser Safety, Laboratory and Radiobench Hoods and Local Exhaust Systems, Hazardous Waste Operations (HAZWOPER), Respiratory Protection, Training and Documentation.

Procedure Manual 5Q Radiological Control

DOE has established basic standards for occupational radiation protection in Federal Regulation 10 CFR 835, *Occupational Radiation Protection*. That regulation requires affected DOE activities to be conducted in compliance with a documented Radiation Protection Program (RPP) that addresses each requirement of that regulation and is approved by DOE. *RPP, -RP-94-1239, Radiation Protection Program for 10 CFR Part 835 Occupational Radiation Protection* links each requirement of the regulation to a specific S/RID entry, which links to an implementing policy and/or procedure. Compliance with the requirements of this 5Q manual and associated site radiological control procedures will ensure that the user is in compliance with 10 CFR 835, the RPP, and related documents. The user is encouraged to review any underlying regulatory and contractual requirements and the primary guidance documents in their original context to ensure compliance with the applicable requirements.

Procedure Manual 6Q site Emergency Plan Management Program Procedures

This manual establishes the site requirements and standard methods for the development and maintenance of an Emergency Preparedness Program. This Manual contains standards that address the following emergency preparedness program requirements:

- Development and Maintenance of an Emergency Planning Hazards Assessment (EPHA);
- Development and Maintenance of Emergency Action Level (EAL) Procedures;
- Establishing and Maintaining Personnel Accountability Programs;
- Development and Conduct of Facility Emergency Preparedness Drills;
- Site Level Emergency Services Drill and Exercise Coordination and Conduct;

- Facility/Area Emergency Response Facilities;
- Emergency Response Organization (ERO) Administration;
- Establishing the Principal Function and Related Operations of the Safety Alarm System; and
- -SCD-7, the site Emergency Plan (formerly Volume 1 of Procedure Manual 6Q) defines appropriate response measures for the management of emergencies involving the site.

Procedure Manual 7Q Security Manual

This manual has been prepared to establish the requirements for implementing company policies and to identify requirements and procedures to comply with guidelines set forth in applicable DOE Orders and site office directives. This manual establishes security controls and procedures applicable to operations performed under contract to DOE at this site. The purpose of this manual is to provide employees of the contractor and subcontractor personnel with direction as required by applicable DOE Orders and other directives.

Federal Laws and applicable DOE Orders require the contractor to protect government-owned, company-controlled property from acts of theft, diversion, arson, sabotage, or malicious destruction. The contractor is committed to security with special concerns for the protection and safety of personnel, special nuclear material (SNM), classified information, government property, and any act that may compromise or cause an adverse impact on national security or program continuity.

S&S programs are based on vulnerability/risk analyses designed to provide graded protection in accordance with the asset's importance. S&S programs are tailored to address facility-specific characteristics. Facility-specific protection programs will be documented. Risks to be accepted by DOE will be identified and documented by S&S planning documents that contain vulnerability/risk analyses. S&S programs provide a high degree of assurance of the capability to deter, detect, assess, delay, prevent, and/or inhibit unauthorized access to nuclear weapons, nuclear test devices, or completed nuclear assemblies, Category II or greater quantities of SNM, and vital equipment.

Procedure Manual 8Q Employee Safety Manual

This manual establishes company safety requirements, procedures, minimum program requirements, and defines responsibilities for their implementation. The cornerstone of safety program is the individual right of every employee, including subcontractors, to stop work if they observe employee safety being compromised. Some examples of procedures contained in this manual are:

- Management and Administration of Employee Safety Program.
 - Safety Policy and Program Responsibilities.
 - site Safety Committees (e.g., BBS Steering Committee, VPP Core Team, etc.).
 - Reporting Unsafe Practices or Conditions.
 - Workplace Safety and Health Program for site Visitors, Vendors, and Subcontractors (includes Point-of-Entry (POE) procedure that ensures all visitors, vendors, and subcontractors get a general safety, radiological, and security briefing before being allowed to enter the site).
 - Reporting, Responding, Investigating, and Recording of Occupational Injury/Illness or Near Miss.
 - Off-The-Job Safety Program.
 - Reporting Damage to Vehicles/Property Owned by the Government or Used for Government Business.
 - Final Acceptance Inspection of New, Altered, or Dispositioned Facilities or Equipment.
 - Assisted Hazard Analysis (AHA) – Task-Level Hazard Analysis.
- General Site Safety Requirements.
 - Rules for Safe Conduct.
- Safety Requirements for Specific Activities and Equipment.
 - Basic electrical safety awareness, requirements for working near overhead power lines, motor vehicles, scaffolds, aviation, boating, lockout/tagout, confined space entry, safety showers and eyewash facilities, personal protective equipment, hand and portable power tools, pedestrians, parking lots, ladders and a number of other specific activities and equipment.

Procedure Manual 10Q Computer Security Manual

Regarding Computer and Information Security, the contractor will conduct operations in accordance with applicable public law, DOE Orders and sound business practices. Management and all users of computer resources are accountable for information assets, designation of mission-essential and sensitive information, loss reporting, business resumption plans following disasters, and

security control objectives. The site's information resources must be protected in an environment of changing technology and constant competition. The purpose of the Computer Security Program at this site is to adequately and cost effectively protect the integrity, confidentiality, and availability of classified and unclassified information, networks, systems, and applications. The accomplishment of this purpose entails the establishment of further responsibilities and general program requirements for determining risk, planning, training, procuring, managing, using, and controlling computing resources in support of the DOE-site mission.

Procedure Manual 11Q Facility Safety Document Manual

Procedure Manual 11Q addresses facility hazard categorization, safety analysis and safety basis documentation requirements and provides an effective system for implementing those requirements tailored to the type and level of hazards present. This manual implements the safety documentation requirements of 10 CFR 830, Subpart B, for nuclear facilities. Requirements of hazard analysis or safety analysis and documentation of the analysis are contained in various site-wide programs and manuals. This Manual consolidates these requirements (one-stop shopping for safety basis documents). However, this manual does not cover those aspects of site-wide programs not related to safety analysis/documentation. For example, site-wide Fire Protection Program (i.e., Procedure Manual 2Q) consists of many elements, but this manual covers only those elements related to safety analysis/documentation (i.e., Fire Hazard Analysis). This manual also addresses the site programs for Unreviewed Safety Questions, Authorization Agreements, Radioactive Waste Management Basis, Linking Documents, and describes the Integrated Worker Safety Program.

Procedure Manual 12Q Assessment Manual

This manual contains the programmatic direction for Assessment Programs as follows:

- Control of Performance Objectives and Criteria (POC)

A key part of Assessment Process is a standard set of POC upon which assessments of facilities are based. Those POC are contained in -SCD-4, Assessment Performance Objectives and Criteria.

- Startup and Operational Readiness Assessments

Procedures are provided for the uniform conduct of management self-assessments (MSAs - optional), operational readiness reviews (ORRs), and readiness assessments (RAs), routine startups and startup authorization. The procedures in this section of Procedure Manual 12Q, Assessment Manual, identify the activities required of the contractor to accomplish nuclear activity startups. Based on the graded approach identified in the referenced DOE documents, various levels of and DOE

assessments (up to and including a DOE ORR) are performed to ensure that all requirements identified in startup planning documents have been satisfied prior to the startup. This graded approach is based on the hazard category assigned to the activity and, if a restart, the circumstances surrounding the shutdown.

- Self-Assessment Program

Self-Assessments are implemented throughout the contractor to:

- Measure level of performance of activities.
- Demonstrate ongoing compliance to regulatory requirements.
- Identify problems.
- Determine strengths and best practices.

This program defines the structure, principles, responsibilities, and associated requirements for Self-Assessments as applied to organizations, assessment units, and functional programs. Self-Assessments, along with Performance Analysis described below, are part of Management Assessment process.

- Facility Evaluation Board Assessments

Facility Evaluation Board (FEB) teams staffed by Operations Evaluation Department personnel:

- Provide accurate, consistent, and gradable measures of facility/project and program performance effectiveness.
- Evaluate adequacy of the line self-assessment process.
- Satisfy contractual obligations for company-level independent oversight.
- Provide ongoing evaluations of ISMS performance.

This section of the manual defines responsibilities of line management, the Operations Evaluation Department and, FEB teams as they relate to planning, conducting, reporting, and follow-up of Integrated Safety Management Evaluations (ISMEs) by the Facility Evaluation Board.

- Performance Analysis

This procedure describes Performance Analysis (PA) process and defines the minimum requirements for the process. The goal of the Performance

Analysis process is to ensure that recurring problems, issues, or events are identified and corrected, and thereby, preventing more serious or significant occurrences. The Performance Analysis process integrates event-based and review-based operational data from a variety of sources including: occurrence reports submitted to the Department of Energy (DOE) Occurrence Reporting and Processing System (ORPS), Problem Identification Report (PIR) or site Tracking, Analysis, and Reporting (STAR) managed problems, Management Assessment processes (including Performance Analysis and Self-Assessments), and other non-ORPS reportable event data. This process meets the ORPS and the Price-Anderson Amendments Act (PAAA) requirements and supports implementation of the DOE Quality Assurance Rule and Order.

Procedure Manual 14Q Material Control and Accountability Manual

The contractor implements and maintains a graded safeguards program to ensure that nuclear materials are protected, controlled, and accounted for. Safeguards programs are designed to meet defined threats and are effectively coordinated and integrated at all levels of operation. This manual serves to implement applicable Department of Energy (DOE) orders for which the contractor is contractually obligated to comply. The manual defines the following program elements: 1) Basic Requirements, 2) Material Accounting, 3) Measurement Control, 4) Material Transfers, and 5) Material Control. Material Control and Accountability Plan is an addendum to this Procedure Manual.

Procedure Manual 18Q Safe Electrical Practices and Procedures

This manual establishes Electrical Safety Program that promotes an electrically safe workplace, free from exposure to electrical hazards, for all employees and subcontractors. This manual defines the general safe electrical practices, electrical PPE and equipment inspections, and safe electric utility practices. This manual provides direction to implement the electrical safety requirements of DOE Orders, criteria and guides, and achieve compliance with applicable OSHA regulations and consensus codes and standards; e. g., National Electrical Code (NEC), National Fire Protection Association (NFPA) Code, National Electrical Safety Code (NESC) and ANSI-C2.

Procedure Manual 19Q Transportation Safety

This Manual documents the offsite, onsite in-commerce (OSIC), and onsite packaging and transportation program and demonstrates compliance with Department of Energy (DOE) transportation safety standards that require:

- All hazardous materials be handled in a safe manner to ensure required protection to workers, the public, and the environment.

- All onsite transfers of hazardous materials meet the requirements of applicable federal, state, and local regulations as well as DOE directives.
- All offsite shipments of hazardous materials meet the requirements of Department of Transportation (DOT).
- Regulations, applicable DOE orders, and other federal, state, and local regulations.
- Each person involved in the packaging and transportation of hazardous material has the required training to perform assigned job functions.

Additionally, this manual contains guidelines for facility implementation of Safety Analysis Reports for Packaging (SARP) requirements.

Procedure Manual 21Q Protection of Human Subjects in Research

This manual establishes the requirements for human subjects research conducted at this site. The majority of such research is performed by researchers from external institutions who are studying the health effects of working at site or living in neighboring communities. On occasion, employees also may conduct research involving human subjects, such as that necessary to evaluate man-machine interfaces or to test devices, products, or materials developed through research. The manual is divided into four procedures, each describing a major aspect of the human subjects research process as follows:

- HSR-1: Administration of Research Involving Human Subjects
- HSR-2: Preparation of Research Protocols
- HSR-3: Institutional Review Board
- HSR-4: Conduct of Research Involving Human Subjects

Procedure Manual 1S site Waste Acceptance Criteria Manual

The procedures contained in this Manual apply to all onsite and offsite generators processing waste for treatment, storage and disposal (TSD) at this site's facilities. The scope of this manual includes associated and sanitary, low level, mixed, hazardous and transuranic wastes, but does not include high level waste programs. The Solid Waste Management Committee (SWMC – see 1-01 Charter 6.15) has overall technical responsibility for the contents of this manual.

Procedure Manual 2S Conduct of Operations

This Conduct of Operations Manual, 2S, establishes disciplined operations of facilities by the contractor. Operating in accordance with these procedures is a

fundamental requirement for the safety of employees, the public and facilities. Compliance with these standards provides defense-in-depth against many kinds of accidents and adverse incidents by minimizing error and confusion and by providing clear means to identify problems, determine underlying causes, take preventive action before adverse events occur, and bring about continuous improvement in the quality and safety of operations. Alternate Implementation Methods for meeting the requirements of this manual may be obtained when justified according to Procedure 6.1 of this manual. Alternate Implementation Methods must meet applicable S/RID requirements.

Procedure Manual 3S Conduct of Modifications

This procedure establishes the overall process for conduct of plant modifications (except minor and temporary modifications) at the site. This procedure establishes the company level requirements and is supplemented by various other company and lower level manuals as identified within. This procedure provides an overview of the process for conducting plant modifications. This process implements key elements of a disciplined systems engineering approach to ensure that modifications meet customer needs and requirements in a high quality and cost effective manner. This manual serves as a “roadmap” to the various other site level and lower level manuals that are referenced within the body of this procedure and which direct the conduct of modifications of different types at the site.

Procedure Manual 1Y Conduct of Maintenance

This manual sets cost-effective maintenance standards that are used for equipment management at this site. These standards, as re-engineered for Maintenance, comply with the requirements of the Department of Energy (DOE) O 433.1, *Maintenance Management Program for DOE Nuclear Facilities*, as specified in the site S/RID. This manual addresses the four general categories of maintenance: 1) Corrective Maintenance, 2) Preventive Maintenance, 3) Modification, and 4) Other Support (includes work that does not fall into one of the three categories above). This Manual does not apply to the execution of non-maintenance work, such as Decontamination and Decommissioning work. The intent of this manual is to ensure an appropriately tailored approach when determining the maintenance work method. Exceptions or deviations, which must be in compliance with the S/RID, will be obtained in accordance with Procedure Manual 1Y, Procedure 20.01, when technically justified and approved in writing. Use of the Assisted Hazard Analysis (AHA) process (in accordance with Procedure Manual Procedure 8Q, Procedure 120, *Hazard Analysis*) is integrated into maintenance work by Procedure Manual 1Y, 8.20, *Work Control*. The AHA Process provides task-level hazard analysis and authorizes work to commence upon the Shift manager’s approval of the Safe Work Permit (SWP). Where procedures in this manual conflict with Project/Facility conduct of maintenance procedures, this manual will take precedence until such time as conflicts are resolved or an exception/deviation is approved and documented. Business Units, Projects, or

Facilities may supplement the requirements of this manual by providing additional implementation detail, however, such supplements/exceptions will not be deviations from the requirements of this manual. DOE has approved Procedure Manual 1Y as the site Maintenance Implementation Plan (MIP). Procedure Manuals 1Y-1 and 1Y-2 are derivative manuals of Procedure Manual 1Y that contain site procedures for E&I and Mechanical Maintenance, respectively. Project/Facility maintenance and support personnel, as well as those in Operations and Engineering, are responsible for understanding and adhering to the requirements contained in this manual including any approved deviations or exceptions that apply.

Procedure Manual E7 Conduct of Engineering and Technical Support

This Manual has site wide applicability. This Manual coordinates all engineering work among PD&CS and the Operating Business Units, including new facilities and modifications to existing facilities. Aspects of Disciplined Conduct of Projects (DCOP) have been incorporated, as appropriate, into this manual. This manual has the following sections:

- Section 1.0 – Administrative, Organization and Control
- Section 1.5 – Commercial Design Process
- Section 2.0 – Technical Baseline Change Control
- Section 3.0 – Operations Technical Support
- Section 4.0 – Safety Documentation Development
- Section 5.0 – Software Engineering and Control

Procedure Manual E11 Conduct of Project Management and Control

This Manual has site wide applicability. This Manual establishes the site responsibilities and requirements for a process to perform cost effective planning, control, and execution of projects using a risk-based approach and systems engineering methods. This Manual is applicable to all projects at this site managed by the contractor in compliance with DOE O 413.3, *Program and Project Management for the Acquisition of Capital Assets*. For the purposes of this procedure, a project is defined as a unique effort that supports a program mission with defined start and end points, undertaken to create a product, facility, or system with interdependent activities planned to meet a common objective/mission. Formal classification of an effort as a project is determined by the Chief Financial Officer. Projects include planning and execution of construction, renovation, modification, decontamination and decommissioning efforts, and large capital equipment or technology development activities. This manual has limited applicability to Soil and Groundwater Closure Projects

(S&GCP), where management and control guidance are located in the Procedure Manual C1. S&GCP at site is managed as a single strategic system with several subprojects.

Procedure Manual 1E6 Construction Management Department Manual

This Manual has site wide applicability. This Manual directs all construction activities for all facilities at this site. It is a comprehensive compilation of specialized procedures that, similar to Conduct of Maintenance and Conduct of Operations, serves to prescribe for the contractor the “Conduct of Construction” concept, recognizing that construction has a different set of types of work and hazards. It references other Manuals, as appropriate. This manual is arranged in the following topical areas:

- Program Administration;
- Craft Management and Central Shops;
- Construction Engineering Services;
- Subcontracts Administration;
- Environmental;
- Labor Relations;
- Materials;
- Project Controls;
- Construction Quality Control;
- Safety and Health Services; and
- Construction Policies and Requirements.

-SCD-3 Nuclear Criticality Safety Manual

This Manual has site wide applicability. This Manual contains a flowdown of the nuclear criticality safety requirements from S/RID. It defines and establishes Nuclear Criticality Safety Program consistent with applicable DOE requirements, industry standards, company safety policy, and accepted safety practice. It provides interpretation and guidance for the uniform implementation of these requirements and standards at this site and, as such serves as the basis for criticality safety implementing procedures and manuals at the Business Unit or lower levels of the organization.

-SCD-4 Assessment Performance Objectives and Criteria

This manual has site wide applicability. -SCD-4, *Assessment Performance Objectives and Criteria*, is a company-level source and compliance document containing a collection of specific performance objectives and criteria (POC) intended to serve as a basis for assessments conducted by the contractor. These POC are linked to a "smart sample" of source document requirements from Standards/Requirements Identification Document (S/RID) as promulgated in company level manuals. Assessments using POC selected from this document have proven appropriate for the following purposes:

- Demonstration of readiness for nuclear activity startup or restart;
- Effective identification of deficiencies and opportunities for performance improvement through self-assessment and independent oversight of operational activities;
- Development of consistent review-based data for input to the Performance Analysis process; and
- Demonstration of field adherence to policies and procedures when applied to operational activities.

Assessments using these POC also provide indication of how well Safety Management System is integrated throughout site activities.

-SCD-6 site ALARA Manual

The purpose of this ALARA (radiation exposures "as low as reasonably achievable") Source and Compliance manual is to provide the foundation of the sitewide ALARA program for exposure to onsite personnel. The Environmental ALARA Program is implemented by Procedure Manual 3Q. This manual is the means toward completing and achieving compliance with applicable rules and regulations, and implementation of consistent ALARA policies and practices. This manual contains requirements originating in 10 CFR 835 and established good practices from operating experience.

-SCD-7 site Emergency Plan

This manual has site wide applicability. The site Emergency Plan defines appropriate response measures for the management of emergencies involving this site. It incorporates into one document a description of the entire process designed to respond to and mitigate the potential consequences of an emergency. This site Emergency Plan meets the emergency response planning requirements mandated by law and applicable DOE directives and contains fifteen sections as follows:

- Introduction;

- Emergency Response Organization (Internal);
- Offsite Response Interfaces;
- Emergency Categorization and Classification;
- Notification and Communication;
- Consequence Assessment;
- Protective Actions;
- Medical Support;
- Recovery and Reentry;
- Public Information;
- Facilities and Equipment;
- Training;
- Drills and Exercises;
- Emergency Management Program Administration; and
- Emergency Management Program for Transportation.

-SCD-9 Problem Analysis Manual

This manual, which has site wide applicability, specifies the required problem analysis methodology for determining the causes of problems identified by Corrective Action Program (see MP 5.35). The level of analysis required is tailored to the relative severity of the problem being analyzed. This manual contains the Causal Analysis Tree used to determine the causes of identified problems from the Occurrence Reporting and Processing System (ORPS), Corrective Action Program, or other feedback processes.

-SCD-11 Consolidated Hazard Analysis Process (CHAP) Manual

This manual, which has site wide applicability, describes Consolidated Hazard Analysis Process (CHAP). This document was written as a guide to company-level policies and procedure manuals with regard to activities and documents related to process hazards analysis. These process hazards analyses, activities, and documents are applicable to the Department of Energy (DOE) Nuclear Facilities, Radiological/Chemical Facilities, and Other Industrial Facilities at this site operated by the contractor. Part of this Manual called

"Hazmap" is a tool that identifies and defines, for project planners, the characteristics of the various hazards analyses required at each stage of the life cycle of a facility from the conceptual, design and construction project, through the operational and finally, the D&D phases. The remainder of this manual defines features of CHAP that describe the process for developing and consolidating eleven separate process hazards analysis activities into a single integrated activity. CHAP utilizes a team approach involving personnel with the skills and knowledge necessary to address operations, engineering, hazards analysis and functional classification. In addition to the eleven process hazards analysis activities that can be consolidated as described above, the remaining specific design basis hazard analyses are more effectively integrated by the inclusion of appropriate participants on the CHAP team, such as Fire Hazards Analysts, Emergency Planning Hazards Analysts, Nuclear Criticality Safety Analysts, etc.

EXAMPLE B

**WORKER SAFETY AND HEALTH PROGRAM
CONSISTENT WITH
DOE INTEGRATED SAFETY MANAGEMENT SYSTEM
AT A DOE NON-NUCLEAR SITE**

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APPENDIX A to EXAMPLE B- SAFETY AND HEALTH MANAGEMENT PROGRAM
MAINTENANCE, CHANGE CONTROL, AND REVIEW PROCESS

APPENDIX B to EXAMPLE B - S&H FY04 CRAD/SSPMS

APPENDIX C to EXAMPLE B – HAZARD IDENTIFICATION AND CONTROL DECISION
MATRIX

ACRONYMS

| | |
|--------|--|
| BSAFE | Behavioral Safety for Everyone |
| CARs | Corrective Action Reports |
| CAS | Contractor Assurance System |
| CRAD | Criteria Review and Approach Documents |
| DEAR | Department of Energy Acquisition Regulations |
| DP | Defense Programs |
| eLMS | electronic Learning Management System |
| EM | Environmental Management |
| ER | environmental restoration |
| ESAP | Environmental Self-Assessment Program |
| GPP | General Plant Projects |
| HAZMAT | Hazardous Materials |
| HPR | Highly Protected Risk |
| ISMS | Integrated Safety Management System |
| ISO | International Organization for Standardization |
| LOTO | lockout tagout |
| LSO | local site office |
| NEPA | National Environmental Policy Act |
| NNSA | National Nuclear Security Administration |
| MES | Manufacturing Execution System |
| MOPS | Management Observing & Promoting Safety |
| MSDS | Material Safety Data Sheet |
| NFOs | Non-Financial Objectives |

| | |
|-------|---|
| PBS | Project Baseline Summary |
| PHA | preliminary hazard analysis |
| RTBF | Readiness in Technical Base and Facilities |
| S&H | Safety and Health |
| SEN | Secretary of Energy Notices |
| SHINE | Safety & Housekeeping Implementation Needs Everyone |
| SME | Subject Matter Expert |
| SSPM | Site Specific Performance Measures |
| UNO | United Nations Organization |
| VPP | Voluntary Protection Program |
| WRPS | Workload Resources Planning System |

B.1 INTRODUCTION

Part 851.13(b) of the Rule indicates that contractors who have implemented a written worker safety and health program, ISM description, or Work Smart Standards process prior to the effective date of the final Rule may continue to implement that program/system so long as it satisfies the requirements of the Rule. Hence, DOE believes that the integration of these existing programs with the worker safety and health program required by the Rule will eliminate duplication of effort and limit any additional burden associated with the Rule.

This Guide provides explanations, with examples, of how to meet the basic requirements for developing and implementing a worker safety and health program. Also included in are two different examples (Examples A and B) of worker safety and health programs. These examples are meant to demonstrate ways in which a worker safety and health program could be constructed. Many other approaches would be equally valid as long as they address all the requirements of the Rule. These examples DO NOT establish any new requirements and are not the only two approaches for describing a worker safety and health program that is compliant with the Rule.

The following example, Example B, consists of a Safety & Health Management Program (Program). It is confined to worker safety and health elements at a DOE non-nuclear site but clearly conveys how the elements link to the DOE integrated safety management system.

This example of a Program was prepared in accordance with the requirements of contract No. DE-xxxx-xxxxxxxxxxx; components of DOE P 450.4, *Safety Management System Policy*; and Department of Energy Acquisition Regulations (DEAR) clause 48 CFR 970.5223-1, *Integration of Environment, Safety and Health into Work Planning and Execution*. The Program establishes commitments by the contractor to integrate S&H requirements into all phases of its activities and to conduct its operations in an environmentally clean manner, protective of its workers, subcontractors, visitors, and the surrounding community, while fulfilling its mission to the National Nuclear Security Administration (NNSA). The Program is updated annually by the contractor and submitted to the NNSA/local site office (LSO) as outlined in Appendix A to Example B of this Guide. The Program defines the integrated safety management system and describes the S&H Management Systems employed to ensure that all applicable standards and criteria are identified, communicated and implemented, and that assessments of S&H programs are conducted and identified deficiencies are corrected.

The contractor has established S&H Management Systems at both its operations. S&H Management Systems are founded on the principles of the International Organization for Standardization (ISO) 14001 Environmental Management System Standard and DOE's Voluntary Protection Program (VPP) guidance. Cross-reference tables are provided in section 3.0 of this plan to correlate Integrated Safety Management System components to the elements of ISO 14001 and VPP. The S&H Management Systems are integrated with the ISO 9001 Quality Management Systems. The Management systems are certified as follows:

- VPP STAR - April 1996,
- ISO 14001 certification - May 1997,
- VPP STAR extension - August 1999
- ISO 14001 certification extension - April 2000
- ISO 14001 certification - June 2001
- VPP STAR extension - August 2002
- ISO 14001 certification extension - May 2003

This S&H Management Program together with the S&H Management System satisfy the components of DOE P 450.4, *Safety Management System Policy* as verified in September 1999 and documented in the Integrated Safety Management (ISM) System Verification Final Report and Declaration dated June 2000.

B.2 SCOPE AND OPERATING BASIS

B.2.1. GENERAL

Operating in several states, the contractor is considered to operate one facility (for the purposes of this Program) whose processes are accepted as “General Industry.” Clarification of the contractor location references and activities are defined as follows:

- Corporate International – All references to Corporate influence or performance expectations are identified as Corporate International.
- The contractor – All references to the contractor are considered inclusive of all of operations at this DOE location.

The site safety assessment for this location, approved by DOE in September 1995 and the Hazards Survey for this location approved by DOE in January 1997 classify both operations as low hazard, non-nuclear. As such, the contractor is authorized to conduct activities as a low hazard, non-nuclear facility. Should new business or modifications to existing processes exceed the identified thresholds, the necessary NNSA review and approvals will be obtained prior to process start-up.

B.2.2. S&H THRESHOLDS

The hazardous materials used or stored at this location are handled in accordance with appropriate federal regulations. Hazardous materials are divided into three categories and thresholds are identified to determine when additional regulatory or program requirements may be needed to ensure operations are within acceptable risk limits. The categories and thresholds for operations are listed below:

Energetic Material: The storage, handling, testing, use and shipping of explosives (energetic materials) by the contractor will be limited to materials shipped as United Nations Organization (UNO) Hazard Class 1, Divisions 3 (1.3) or 4 (1.4). Departmental explosive limits are established by whether the explosive device is non-propagating/non-mass detonating or propagating/mass detonating. If the explosive devices are non-propagating/non-mass detonating, department explosive limits are based on the number of devices needed for production. If a device is propagating/mass detonating, explosive limits are based on containing the maximum credible event within the operating area.

Radiological Material: the contractor operates a non-nuclear, radiological facility. Limited quantities of radioactive material are maintained for equipment calibration, analytical use, non-destructive testing, and incorporation into product at the contractor.

The contractor inventory will not meet or exceed threshold quantities of radionuclides for higher hazard class categories 2 and 3. Table A.1 of the DOE-STD-1027-92 Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Report lists the threshold quantities by radionuclide.

Hazardous Chemicals: The standards establishing hazardous chemical thresholds are OSHA's Process Safety Management (OSHA 1910.119); EPA's Risk Management Rule (40 CFR 68), Regulated HAPs and Accidental Release Chemicals; and the Threshold Planning Quantities listed in 40 CFR 355.

B.2.3. S&H RISK LEVELS

As low hazard, general industry operations, the contractor does not have the high level of risk most sites within the DOE weapons complex or DOE national labs must address. Since completion of the site safety assessment at this location, the contractor has been addressing hazards at the appropriate level using a risk-based, graded approach. The following description outlines this approach.

Catastrophic level or imminent risks (consequence high/frequency likely) have been eliminated from operations. The Preliminary Hazard Assessment (PHA) program is used to review changes and assure that no new imminent risks are introduced to the contractor environment.

Critical level or serious risks (consequence high/frequency unlikely or consequence moderate/frequency likely) have been addressed through the implementation of Job Hazard Analyses. The PHA Program is used to review changes and assure that serious risks are identified and JHAs appropriately applied.

Marginal/Negligible level or serious/de minimis risks (consequence moderate/frequency unlikely or extremely unlikely or consequence low/frequency likely, unlikely or extremely unlikely) are currently addressed through training, job classification specific knowledge, and/or department specific documentation. The contractor associates are talented, experienced, and trained to the general hazards associated with the type of work

they perform. Additional hazard identification should not be a routine requirement prior to these associates performing their normal work activities. However, the contractor recognizes that these associates might encounter higher hazard levels during performance of specific jobs and when warranted will document hazard controls in work directives or offer additional training.

| Consequence: | | Frequency: | |
|--------------|--|--------------------|--|
| High | may cause deaths, or loss of the facility/operation, or severe impact on the environment | likely | Probability of occurrence per year > 0.10 |
| Moderate | may cause severe injury, or severe occupational illness, or major damage to a facility/operation, or major impact on the environment | unlikely | Probability of occurrence per year ≤ 0.10 to ≥ 0.001 |
| Low | may cause minor injury, or minor occupational illness, or minor impact on the environment | extremely unlikely | Probability of occurrence per year < 0.001 |

Continued operation as a low hazard, non-nuclear facility is ensured through the Preliminary Hazard Analysis process. This process requires an S&H review of new or significantly changed operations prior to activity commencement.

B.3 INTEGRATED SAFETY MANAGEMENT

The contractor has established and maintains an S&H management system founded on the principles of integrated safety management (ISM). The S&H management system is certified under ISO 14001 and DOE VPP. The management system is compliant with corporate requirements and expectations and DEAR requirements on Integration of S&H into work planning and execution. These standards and expectations together provide for a formal, organized process whereby the contractor plans, manages, performs, assesses, and improves the S&H aspects of its operations. The S&H management system supports NNSA's commitment to conduct work efficiently and in a manner that ensures protection of workers, the public and the environment commensurate with the work and the associated hazards of operations.

The Core Functions of ISM are:

- Define Scope of Work
- Analyze the Hazards
- Define and Implement Controls

- Perform Work within Controls
- Feedback and Improvement

The adopted standards that form the basis for the S&H Management System are delineated in the DOE VPP guidelines and the ISO 14001 Environmental Management System standard. The following summarizes the correlation of the ISM System components to the elements of ISO 14001 and VPP.

DOE VPP: This recognition substantiates the effectiveness of Health and Safety programs and validates conformance to the major tenets of the VPP, which are:

- Management leadership
- Associate involvement
- Worksite analysis
- Hazard prevention and control
- Safety and Health training

| ISM | VPP | | | | |
|------------------------------|-----------------------|-----------------------|-------------------|-------------------------------|----------------------------|
| | Management Leadership | Associate Involvement | Worksite Analysis | Hazard Prevention and Control | Safety and Health Training |
| Define Scope of Work | X | | | | X |
| Analyze Hazards | X | | X | X | X |
| Define and Implement | X | | X | X | X |
| Perform Work within Controls | X | X | | X | X |
| Feedback and Improvement | X | X | | | X |

Although the recognition of DOE VPP STAR applies only to this location, the VPP principles have been integrated into the contractor operations and a DOE VPP Application has been prepared with VPP Star status expected to be achieved in FY2004.

ISO 14001: These certifications validate that environmental management system is consistent with the principles of this international standard, which are:

- Commitment and policy: General Requirements, Environmental Policy
- Planning: Environmental Aspects, Legal and Other Requirements, Objectives and Targets, Environmental Management Programs
- Implementation and operation: Structure and Responsibility; Training, Awareness and Competence; Communication; Environmental Management System Documentation; Document Control; Operational Control; Emergency Preparedness and Response
- Checking and corrective action: Monitoring and Measurement; Nonconformance and Corrective and Preventive Action; Records; Environmental Management System Audit
- Review and improvement: Management Review

| ISM | ISO 14001 Elements | | | | | | | | | | | | | | | | | |
|------------------------------|--------------------------|--------------------------|-----------------------------|------------------------------------|------------------------------|---|------------------------------------|--|---------------------|---|------------------------|---------------------------|---|----------------------------------|---|---------------|---|-----------------------|
| | 4.1 General Requirements | 4.2 Environmental Policy | 4.3.1 Environmental Aspects | 4.3.2 Legal and Other Requirements | 4.3.3 Objectives and Targets | 4.3.4 Environmental Management Program(s) | 4.4.1 Structure and Responsibility | 4.4.2 Training, Awareness and Competence | 4.4.3 Communication | 4.4.4 Environmental Management System Documentation | 4.4.5 Document Control | 4.4.6 Operational Control | 4.4.7 Emergency Preparedness and Response | 4.5.1 Monitoring and Measurement | 4.5.2 Nonconformance and Corrective and Preventive Action | 4.5.3 Records | 4.5.4 Environmental Management System Audit | 4.6 Management Review |
| Define Scope of Work | X | | | X | X | | | X | | | | | | | | | | |
| Analyze Hazards | | | X | | | | | X | | | | | X | | | | | |
| Define and Implement | | X | | X | X | | | X | X | | X | | | | | X | | |
| Perform Work within Controls | | | | | | X | X | X | X | X | X | X | | X | | X | | |
| Feedback and Improvement | | | | | | | X | X | | | | | | X | X | X | X | X |

The S&H management system describes how the contractor establishes, documents, implements and updates S&H performance commitments consistent with NNSA program and budget guidance and direction.

B.3.1 GENERAL

The contractor designated representative responsible for all S&H issues is the President of the contractor. The location manager, S&H Operations, has primary responsibility for this location S&H activities and reports directly to the contractor president. The contractor manager of S&H, quality and facilities has primary responsibility for the contractor S&H activities and reports directly to the vice president for operations who reports directly to the contractor president.

Leaders and associates at all levels have integrated S&H into their work activities, including business planning and operations. Responsibilities for each level of responsibility are defined as follows:

| Who | Responsible/Accountable for... |
|--|---|
| President | <ul style="list-style-type: none"> • Adopting and ensuring adherence to policies for S&H performance. • Maintaining a work environment wherein S&H performance is recognized as a priority by all associates. |
| Senior Leadership Team | <ul style="list-style-type: none"> • Building awareness by explaining and communicating its commitment to policies and values relative to S&H performance. • Ensuring that activities conform to S&H related policies, laws, regulations, and internal procedural requirements. • Assigning work and measuring performance. |
| S&H Management Representative (manager, S&H Operations) | <ul style="list-style-type: none"> • Ensuring that S&H management system requirements are established, implemented and maintained in accordance with VPP and ISO 14001. • Reporting on the performance of the S&H management system to management for review and as a basis for improvement of the system. |
| Functional managers/ managers/ Team managers (Line Management) | <ul style="list-style-type: none"> • Accepting responsibility and accountability for S&H performance associated with the work performed under their direct supervision, including: <ul style="list-style-type: none"> a) determining and allocating the resources necessary to comply with S&H related policies, laws, regulations, and program requirements; b) ensuring that associates operate in strict compliance with the policies and applicable procedural requirements in command media; |

| | |
|----------------|---|
| | <ul style="list-style-type: none"> c) making associates aware of their roles and responsibilities relative to the S&H programs, including emergency preparedness and response; d) determining and ensuring completion of training requirements for their associates; e) motivating associates to continually improve through encouragement to make suggestions to improve S&H performance and recognition for effecting associated improvements; and f) controlling processes, including suspension of operations for S&H reasons. |
| All Associates | <ul style="list-style-type: none"> • Committing and adhering to S&H related policies, values and requirements, by: <ul style="list-style-type: none"> a) accepting accountability, within the scope of their responsibilities, for S&H performance; b) taking responsibility for S&H improvements; c) anticipating and initiating action including suspension of operations to preclude any nonconformance relating to the S&H management system; d) identifying and recording any S&H problems; e) initiating, recommending, or providing solutions to those problems and verifying the implementation of solutions; and f) controlling further S&H program activities related to an area of nonconformance until the deficiency or unsatisfactory condition has been corrected. |

The following programs and activities further exemplify the manner and degree to which leaders and associates are involved in S&H program development, implementation, review, and continual improvement at the contractor-managed operations.

- Preliminary Hazard Analysis: This program establishes the requirement that proposed or significantly modified work processes are reviewed for hazard identification and control prior to initiation of the work. The program requires that management or management designees describe and document proposed work

practices for review by S&H subject matter experts. Management is responsible for incorporating recommended controls prior to initiating work.

- **Six Sigma:** Six Sigma is an overall strategy to accelerate process, product and service improvements. This includes S&H and all of the other functions of the contractor. Six Sigma relies on teams to apply various tools to improvement opportunities.
- **Accident/Incident Investigation:** Natural teams of associates investigate all recordable injuries and illnesses.
- **Job Hazard Analysis:** This program establishes the requirement to identify and document work practices requiring JHAs. These work practices are those identified as a serious risk. The program requires development of appropriate JHAs or related documentation to assure hazards are identified and controls are in place and communicated prior to work being conducted.
- **Safety & Housekeeping Implementation Needs Everyone (SHINE)** –This program is one of the elements from this site’s “5S Visual Workplace” (Sort, Store, Shine, Standardize, and Sustain) and establishes a new S&H-related tour. The SHINE program consolidates the Environmental Self-Assessment Program (ESAP), Management Observing & Promoting Safety (MOPS) and Annual S&H Tours into one efficient interactive program.
- **Safety & Health Committees (this location):** These committees, as established for all three shifts and various topical areas, address issues that have global impacts to this location. The use of committees provides an opportunity to: 1) expand involvement in S&H through increased associate participation, 2) facilitate enhanced communication among all parties involved in S&H activities, and 3) guide associated continuous improvement initiatives.
- **S&H Management Audit:** This program requires management to walk their areas periodically to reinforce observed safe behaviors and practices and to facilitate interaction between associates and senior leadership.
- **Safety Process Steering Commission:** a group of senior managers including the Director who meet weekly to oversee S&H activities and review issues.
- **BSAFE (Behavioral Safety for Everyone) Steering Committee:** oversees the implementation and operation of the behavior based safety program.

The ISM Program is defined at various levels: site, facility, department, and task/worker. The site is defined as being inclusive of both NNSA and the contractor. Department level and worker level are where operations work is carried out and the highest risks are incurred. The following sections provide details on how ISM is conducted under each core function at each level.

B.3.2 DEFINE SCOPE OF WORK

B.3.2.a SITE:

Operations at this and one other location are NNSA owned, contractor operated. A mission is assigned to each operation and is defined in the operating contract. Both the LSO and the contractor must operate within the assigned mission and adhere to requirements as defined in the contract. A Performance Evaluation Plan is established between NNSA and the contractor on an annual basis. This plan is then used to evaluate the work accomplished at the operations.

Work is subject to funding through the operating expense budget. NNSA receives a budget from Congress and then must decide the funding level for each operation. LSO and the contractor receive an operating budget and the contractor must then decide how to apply allotted funding. S&H activities may be indirectly funded or may have a direct funding source, depending upon the nature of the activities. The majority of the S&H activities are indirectly funded through the plant's primary funding source, Defense Programs (DP). The labor and operating expenses for DP-funded S&H activities are forecast through internal divisional budgets, which are consolidated into plant operating requirements. The plant operating requirements, capital equipment, and General Plant Projects (GPP), constitutes the plant's DP operating budget.

S&H funding targets are derived for each functional area by forecasting the operating expenses necessary to support all programs. Major budgeting and planning assumptions are defined in applicable budget support documentation. Funds received are allocated to S&H functions as necessary to ensure compliance with all regulatory drivers. The budget formulation process includes the identification of requirements over plant funding targets. If any S&H activities are identified as requirements over target, the functional area responsible for these activities reviews the impact with the manager, S&H Operations and the applicable divisional budget coordinator to assess the associated risk. Total plant requirements over target are reviewed with the Controller and Senior Leadership, prioritized for the plant, and presented as a budget schedule in the operating budget submission.

This location's environmental restoration (ER) activities are direct funded by Environmental Management (EM). EM funded activities are budgeted through the ER Project Baseline Summary (PBS) submitted to DOE. EM funded activities are projected in the plant's Workload Resources Planning System (WRPS) with other non-core stockpile management work and incorporated into the total funding profile for the plant.

The workload prioritization process is conducted consistent with NNSA budget guidance and EM program requirements for submission of an EM Budget Prioritization plan. This process is designed to provide a defensible basis for funding decisions on S&H programs, and to effectively manage risk and achieve compliance. The following prioritization mechanism is applied:

Prioritization of plant operating budgets begins with the call for budget estimates to Divisional Budget Coordinators. This call is based on the latest NNSA budget guidance and is issued from the Finance Administration Division. Budget estimates are prepared based on personnel costs, production schedules, plant issues, known requirements (including S&H regulations & DOE/NNSA directives), and planned projects. The budget estimates are then summarized in report format for Management review. During this Management review, the priorities are established based on the NNSA-HQ DP Budget Guidance. This guidance has as its top priority, "Maintain facilities in a safe, secure, and legal status."

A final budget estimate is prepared and submitted to NNSA. Unfunded needs are reflected on a Schedule 6. The Approved Funding Program/Financial Plan is then received from NNSA.

The S&H organization has a history of having no unfunded requirements. Budget estimates are prepared based on regulatory compliance, significant aspects, policy, and continuous improvement consistent with the S&H Management System.

Current budgeting for S&H falls into the Readiness in Technical Base and Facilities (RTBF) funding mechanism. Implementation Plan data sheets are prepared each fiscal year for Environmental and Safety and Health. Quarterly RTBF reports provide visibility of S&H-driven activities (direct and indirect) throughout the organization which have been funded by Defense Programs

The S&H five-year site plan is prepared annually to document expenditures for S&H and identify upcoming needs. Long term stewardship costs are reflected in the ten-year comprehensive site plan updated annually.

B.3.2.b FACILITY:

Work received at contractor operations is in the form of traditional work or non-traditional work. The Design Agencies or National Laboratories provide the traditional scope of work. This constitutes the major mission function for the contractor. Non-traditional work or new business is subdivided into multiple categories. Reimbursable work can be for other government agencies, commercial industry, or non-routine NNSA work. This work is received with varying levels of scope provided. It might have a detailed scope or might be left to the contractor engineers to define the scope.

The contractor conducts operations at this and one other location under agreed upon DOE and industry standards. These are defined in the operating requirements database. The contractor maintains the database in conjunction with LSO following joint decisions on what requirements need to be documented. This maintenance is a contractual obligation and signatures are required from both parties prior to changes being made to the database.

In the course of transitioning from DOE Orders to industry standards and developing the Operating Requirements database, specific industrial standards could not be identified for

a number of key requirements important to NNSA and the contractor. The following requirements are included in this plan as additional commitments to ensure maintenance of the activities needed to support these value-added requirements and principles.

- The contractor will maintain a level of fire protection sufficient to fulfill the requirements for the best protected class of insurance for industrial facilities, commonly referred to by NNSA and Insurance carriers for purposes of facility classification as Highly Protected Risk (HPR).
- In lieu of the annual site environmental report, the contractor provides an annual environmental summary with references to other reports containing the environmental monitoring data and identifying concerns or issues at this site for public dissemination.
- A contractor Pollution Prevention Program Plan will be maintained and updated on a triennial basis.
- An Annual Report on Waste Generation and Waste Minimization Progress will be prepared and submitted to NNSA.

Annually, Criteria Review and Approach Documents and site Specific Performance Measures are prepared for the contractor (reference Appendix B). These criteria and measures are used by NNSA to assist in evaluating performance with regards to ISM.

Company president and senior leadership, including the manager of S&H operations, develop an annual Strategic Plan. The strategic plan documents the strategies and tactics that will be accomplished to improve performance on the NNSA contract. S&H objectives and targets are then developed to support the Strategic Plan and are derived from consideration of relevant legal and other requirements, environmental aspects, and safety and health focus areas. S&H considers technological options; financial, operational and business requirements; and the views of interested parties prior to finalizing the objectives and targets. Objectives and targets are consistent with policies reflecting commitments to respecting individuals and the environment and the prevention of injuries, illnesses and pollution. These objectives and targets are assigned to the appropriate level and function of the organization. The contractor documents and maintains these objectives and targets and monitors performance against them with regular reviews and revisions to foster desired improvements in S&H performance.

B.3.2.c DEPARTMENT/ACTIVITY:

The scope of work at the department or activity level is generally well defined. The exact format for the scope of work depends on the organization performing the work. The contractor has three basic functions with defined scope of work formats.

Operations performs the manufacturing processes in the facilities. Their work is defined by the PCD Schedule, work authorizations, the design drawings in combination with the

Manufacturing Execution System, Process Engineering Specifications, and General Process Instructions.

Facilities performs maintenance and facility upgrades, including construction, at the contractor operations. Maintenance work is conducted through the MAXIMO maintenance request system. The requestor submits the request and a maintenance planner prepares a work order within the system, including S&H concerns and personal protective equipment needs. Third-party contractors working to a set of design documents typically perform facility upgrades. These design documents, the contractor safety handbooks, and the contractor's job specific safety plan, define the scope of work for these activities.

Laboratory operations within operations perform work to laboratory test requests and follow laboratory test methods. These documents combine to define the scope of work

Other operations performed at this location have a scope of work defined by some type of request specific to the work being performed. The scope may be well defined or may be vague in nature. The PHA process, associate skills, and training are relied upon in these instances to assure safe operations.

B.3.2.d TASK/WORKER:

The contractor has a highly trained and skilled workforce. This training and skill set is relied upon on a daily basis to assure safe operations. The associates are encouraged to question the task assigned to them. The expectation is that each associate should know the scope of the work to be undertaken or should raise the issue to their management. Under the VPP program, associates have the right to stop work if they believe the work is unsafe or could be performed in a safer manner.

The contractor has established an electronic Learning Management System (eLMS) to manage associate training. This system documents training requirements and training history including completion dates for training activities. Associates can be assigned qualification training, which must be completed prior to performing the task at hand. The associate must adhere to a qualification training plan stating the controls in place until the training is completed when requirements are overdue. There is also mandated training, which is training that associates must complete by an assigned date, but is not required to perform the assigned tasks. The third category of training is developmental training. This training is assigned for the benefit of associates to help them further their careers. It is line management's responsibility to monitor associate training records to ensure completion of mandated and qualification training for associates in their organization.

As a final safeguard, managers may conduct safety briefings, job orientations, or tool box talks to assure a complete understanding of the scope of work and to raise awareness to hazards associates might face in performing new, infrequent, or higher risk tasks.

B.3.3 ANALYZE THE HAZARDS

B.3.3.a OPERATION:

This location completed an Operation Safety Assessment and received DOE approval in September 1995. The contractor completed a Hazards Survey and received DOE approval in January 1997. These documents constitute the operation level hazards analysis. Based on these assessments and accident analyses performed at operations, no Technical Safety Requirements, Safety Limits, Limiting Conditions for Operations, or Surveillance Requirements have been defined. Both operations are classified as low hazard, non-nuclear, general industry. New business or modifications to existing processes are reviewed to assure that the operations do not exceed the identified thresholds. If these thresholds are to be exceeded, NNSA review and approval will be obtained prior to process start-up.

operations are both subject to requirements under the National Environmental Policy Act (NEPA). This requirement applies to new operations and activities or changes to existing processes and activities. A NEPA determination to assess environmental impacts must be made prior to funds being expended on the project.

B.3.3.b FACILITY:

The following processes and programs are used to identify and evaluate S&H hazards, risks, and impacts at locations:

- Environmental aspects analysis
- Safety and Health focus areas
- Hazard Survey and Hazard Assessment

The contractor conducts an annual analysis of environmental hazards through the ISO 14001 environmental aspects analysis process. The environmental aspects analysis process uses data from environmental releases to air and water, waste generation, and energy consumption as the basis for a scoring process. The results of the process are a listing of the significant environmental aspects. A team of environmental staff and other functions as needed accomplishes the scoring. The scoring is conducted using the data collected, a set of aspect definition sheets, and a detail and summary scoring sheet. Activities, products, and services are scored for each aspect based on normal and abnormal operations, and scenario notes are kept for the scoring process to document the decisions reached. The scores are tabulated and a significance threshold established by the team. Those aspects scoring above the threshold are considered significant and a business considerations form is completed for each of these. The completed package is then presented to S&H Leadership for a decision on which recommended actions will be pursued. These actions become the established objectives and targets for the next year under ISO 14001.

An analysis of safety and health is also conducted by the contractor to determine the safety and health focus areas for the next year. This process is less formalized but relies

on data from OSHA recordable accidents and first aids. A team analyzes the data to determine where most injuries are occurring. This analysis allows for the establishment of focus areas and potential realignment of resources if necessary.

Emergency planning is conducted based on hazard surveys and a hazard assessment, which are updated annually. These documents review the hazards associated with potential emergency events and assess the possible off-site release of chemicals and impacts to surrounding community members. The documents are then used to plan emergency response actions, train emergency responders, and assure quick and appropriate responses in the event of a real emergency.

B.3.3.c DEPARTMENT/ACTIVITY:

The Hazard Identification and Control Decision Matrix documented on Appendix C, outlines how S&H applies hazard identification to new, modified, or restarts of equipment, processes, or materials. This decision matrix is implemented through an electronic Hazard Identification and Control system. The system is used to accomplish Preliminary Hazard Analysis, NEPA documentation, Exposure Assessments, and on-site reviews.

The Preliminary Hazard Analysis process constitutes the change management function for S&H and is the cornerstone for department or activity level hazards assessment at the contractor. A requestor or associate wanting to add or modify equipment, facilities, processes, or materials can submit a PHA to S&H staff for review. At this location this is the electronic Hazard Identification and Control system. The contractor uses a paper based request system. S&H staff will review the request and determine what hazards might be present and the controls necessary to minimize risk associated with these hazards. Implementation of the controls or elimination of the hazard are then the responsibility of the requestor or operating department with support from S&H staff. Information related to the identification of S&H hazards, risks and impacts is kept current through PHA reviews of new or modified processes, equipment and hazardous materials.

The Job Hazard Analysis (JHA) program and documents identify hazards and controls that associates will encounter as they perform higher risk activities at the contractor. JHAs offer guidance to line management in establishing training requirements for associates who are responsible to perform these tasks. Associates reading and following the guidance provided in the JHA can then control these risks through application of engineering controls, administrative controls, or wearing of personal protective equipment. These JHAs are provided to the workers electronically and are linked directly to the Manufacturing Execution System (MES) at this location simply by clicking a button. The MES provides electronic instructions on how to perform the various manufacturing, testing and assembly operations within this location.

The location Industrial Hygiene department completed a documented Hazard Assessment for each operating, maintenance, and laboratory department. These assessments are housed in the Hazard Identification and Control system and are maintained by the

Industrial Hygiene department. These assessments provide a consistent tool for documenting hazards and controls within these departments.

Various exposure assessments, surveys and evaluations have been conducted and/or are periodically performed, including but not limited to assessment of the following types of S&H hazards, risks and impacts:

- Noise
- Lead in construction/maintenance
- Drinking water quality
- Asbestos
- Confined spaces
- Musculo-skeletal disorders
- Beryllium and other carcinogenic materials

These assessments are conducted to assure that the hazard analysis is adequate and that no changes have impacted the analysis.

B.3.3.d TASK/WORKER:

The contractor relies on the S&H staff to analyze hazards at the outset of operations as part of the PHA process. Other associates are expected to utilize the S&H staff in hazard analysis when needed. The contractor S&H staff is highly qualified. S&H personnel have the education, training, experience, and professional certifications to provide effective support to operations. In-house resources are augmented with subcontract personnel to meet certain requirements or special needs. Appropriate selection criteria are developed and applied to ensure that all subcontractors hold the appropriate accreditations, licenses, certifications, or other prerequisite qualifications.

Under the VPP Program at the contractor, every associate has the right to question the scope of work or the hazards analysis prior to the commencement of work. They have the right to participate in Safety and Health issues including the hazard analysis, demonstrate continuous improvement, and become actively involved.

Associates have access to the on-line Material Safety Data Sheet (MSDS) system. This system is updated through the PHA process whenever new chemicals are brought into the operation. Associates can look up MSDSs for chemicals they will be in contact with and use the data to help analyze the hazards.

The contractor relies on the skill of the craft, training, and experience of associates to perform a final analysis of the hazards prior to performing the tasks.

B.3.4 DEFINE AND IMPLEMENT CONTROLS

B.3.4.a SITE:

The contractor operating requirements database lists the laws, regulations, DOE Orders and industry standards, including ISO 14001 and VPP that collectively define the S&H operating requirements for this location. This list defines the controls that must be adhered to the controls are then implemented at the facility, department/activity, and task/worker levels.

B.3.4.b FACILITY:

The definition of controls at the highest level can be found in the applicable policies. The contractor senior management has defined and adopted policies relative to S&H performance that:

- are appropriate to the nature, scale and S&H impacts of its activities, products or services.
- include a commitment to comply with relevant legislation and regulations and with other S&H requirements to which the contractor subscribes.
- include commitments to prevention of injuries, illnesses and pollution.
- include commitments to continuous improvement.

The contractor has established the following Operating, Quality and S&H policies to document its commitments relative to S&H.

| <i>This location OPERATING POLICY</i> | <i>The contractor OPERATING POLICY</i> |
|--|---|
| <p><i>We will be preeminent in:</i></p> <ul style="list-style-type: none"> • <i>Providing products and services valued by our customers;</i> • <i>Complying with regulations and requirements;</i> • <i>Respecting individuals and the environment by preventing injury, illness and pollution; and</i> • <i>Continuously improving all processes.</i> | <p>The contractor commits to:</p> <ul style="list-style-type: none"> • Being preeminent in providing products and services valued by our customers, • Respecting individuals, • Protecting the safety and health of our associates by integrating safety and environmental protection into our business processes, • Minimizing our environmental footprint, • Complying with regulations and requirements and • Assessing performance for continual improvement. |

S&H requirements are identified to facilitate regulatory compliance and conformance with the S&H policy. S&H requirements originate from many sources, including, but not limited to—

- DOE and NNSA Orders and Secretary of Energy Notices (SEN)
- Federal, State and local laws and regulations including Executive Orders, permits and compliance agreements
- Officially adopted industry standards (recognized industry/national standards to which the contractor has subscribed and committed)

These requirements are incorporated into documented procedures to assure facility level compliance.

Facility level compliance is controlled by a set of documents collectively titled Command Media. This S&H Management Program, the S&H Management System Manual, the S&H Process, the S&H Program Model and supporting detail documents found within Command Media provide the basis of the S&H Management System.

The S&H Program Model describes functional areas within S&H. Each of these functional areas contains detail documents called process descriptions and work instructions. A *‘Process Description’* describes a single process with sufficient detail to establish ‘what’ is to be accomplished. *‘Work Instructions’* describe ‘how’ specific details of that process are to be accomplished. Associated documents, records and forms provide a mechanism for recording required data. These documents are established to implement legal, regulatory and other S&H requirements to which the contractor subscribes and that are applicable to its operations and activities.

A numbering system has been devised to identify command media documents. Each document is identified by a sequence of four (Process Description) or five (Work Instruction) sets of digits.

xx.xx.xx.xx.xx

||||__ __ __ Identifies *Work Instruction*

||||__ __ __ __ Identifies *Process Description*

||__ __ __ __ __ Identifies Business Process

||__ __ __ __ __ Identifies Business Function

||__ __ __ __ __ __ Identifies Functional Business Area

The components of the Command Media system are numerically differentiated to distinguish between the governing contractor Business Model and the subsidiary Functional Areas of the S&H Program Model. The Functional Business Areas of the

contractor Business Model are assigned a '00' series (e.g., 01, 02, 03), whereas the corresponding elements of the S&H Program Model are assigned a '20' series (e.g., 21, 22, 23).

When copies of the electronic command media; S&H management program, process descriptions, or work instructions, are printed from the on-line display system, each page has a system-generated header including the document number, a statement of currency and a page number. *It should be noted relative to use of material printed from this system that the electronic system/database is the official reference.*

The Command Media system is supported by job aids and other types of controlled documents to support the management system. These documents are used as resources and tools.

As discussed in Section 3.1, Facility level objectives and targets are established and tracked. These can be considered controls for S&H as they direct completion of certain projects and activities designed to lessen S&H impacts.

The contractor has established and maintains a Records Management process that has been certified under ISO 9001 and ISO 14001 that describes procedures for identifying, collecting, indexing, accessing, filing, storing, maintaining, and disposing of records. The Records Management Handbook, as controlled by the Records Management process, establishes the minimum required retention period for records across the full spectrum of business activities and record-specific retention times are established and recorded. Record legibility, identification to the activity, process or program involved, and storage arrangements are the responsibility of each respective department.

Records (in various types of media) are maintained to demonstrate conformance to specified requirements and the effective operation of the S&H management system. Records associated with S&H programs are defined and controlled in accordance with the Records Management process. Included in this process are results of S&H compliance monitoring activities. These activity results include monitoring data, compliance inspection and self-assessment results; internal/external complaints regarding S&H; S&H hazards, risks and impacts; legal and other S&H requirements such as regulations and permits; accident/incident investigations; associate medical data; and emergency preparedness and response records.

All records are legible and are stored and retained in a way that they are readily retrievable in facilities that provide a suitable environment to prevent damage or deterioration and to prevent loss.

B.3.4.c DEPARTMENT/ACTIVITY:

Department/activity level controls are defined and implemented with the applicable work directive systems including MES, Maximo, Laboratory Test Methods, JHAs, chemical carcinogen control plans, chemical hygiene plans, WACs, and WITs.

MES Work Directives have links from the MES system to the JHAs based on the department performing the task. The MES work directives also contain warnings and some controls for associates to follow while manufacturing product. Maximo work orders contain controls in the form of instructions for identified hazards and personal protective equipment to be worn while performing the maintenance work. Laboratory test methods have limited controls built into the test methods to prevent serious chemical reactions, chemical burns, inhalation of vapors, and other related safety and health concerns.

The JHAs define hazards and the controls to be implemented during the task performance. These are documented in the electronic JHA system accessible from computers throughout the locations. Hazards and associated controls covered in the JHAs include training needed, personal protective gear to be worn, chemical warnings, proper equipment to be used, etc.

Controls for chemicals are established within Carcinogen Control Plans and Chemical Hygiene Plans. The carcinogen plans are documented within the JHA system. Chemical Hygiene plans pertain mainly to laboratory operations and are paper based.

Operational controls have been established within Process Descriptions and Work Instructions and routine monitoring is performed relative to S&H hazards, risks and impacts as discussed in Section 3.5.

B.3.4.d TASK/WORKER:

Workers are expected to adhere to the controls defined in the department/activity level documentation. Part of this documentation includes LOTO equipment specific sheets, internal permits (Hot Work, Electrical Safety, Excavation, Aisle Impairment, etc.), and check sheets.

Again the contractor relies on the skill of the craft, training, and experience to protect workers at this level. The workers have the right to stop work and question the controls.

B.3.5 PERFORM WORK WITHIN CONTROLS

B.3.5.a SITE:

NNSA-LSO and the Corporate Leadership Team are responsible for assuring that the locations are operated in a safe and environmentally protective manner. It is their expectation that all associates are responsible for their safety and the protection of the environment. This is reflected in the roles and responsibilities outlined in this plan.

B.3.5.b FACILITY:

The S&H Management Representative, currently the manager, S&H Operations, is appointed by the President, who has delegated authority and responsibility for ensuring the S&H system requirements are established, implemented, and maintained in accordance with the standards of VPP and ISO 14001. The S&H Management Representative reports on the performance of the S&H management system to the

President, staff, and NNSA for review and as a basis for continuous improvement. The S&H Management Representative reports to and has direct access to the President in matters relating to the S&H management system. Specific responsibilities of the S&H Management Representative include:

- ensuring that S&H Executive Committee meetings are convened;
- participating in the Management Reviews;
- overseeing the identification of S&H objectives and targets, administration of S&H programs, preparation and implementation of plans to change the management system, and reporting on S&H performance;
- ensuring that trained personnel and adequate resources are available to manage and maintain the S&H management system in a certifiable condition at all times;
- ensuring that all associates understand the S&H management system at a level appropriate to job requirements; and
- ensuring liaison is maintained with customers, regulatory bodies, NNSA, Corporate, and the ISO registrar on matters that relate to the S&H management system.

The S&H Management Representative and the S&H organization have the organizational authority and responsibility to:

- Administer and maintain the S&H management system and associated programs.
- Initiate action to prevent non-conformance relating to the S&H management system by notifying appropriate associates.
- Identify and record S&H management system problems.
- Initiate, recommend, or provide solutions through designated channels.
- Verify the implementation of solutions.
- Suspend an operation in the event of an out-of-control process, or to control further program activities related to an area of non-conformance until the deficiency or unsatisfactory condition has been corrected.

Line Management and associates are held accountable for S&H at this location. S&H requirements are communicated to associates and management through site-specific S&H Process Descriptions and Work Instructions. These on-line documents identify accountability and assigned responsibilities for associates and management as necessary to effect and maintain S&H compliance. Identified deficiencies or non-compliant S&H items are assigned to the responsible organization for corrective action.

Responsibility and accountability for S&H performance at the contractor is further reinforced through the following means.

- Objectives & Targets: the contractor establishes, documents, maintains and monitors performance toward S&H objectives and targets at all levels of the organization from senior management through the relevant functional departments and individuals with associated accountability for S&H performance. S&H expectations, goals, and objectives are documented through senior leadership Non-Financial Objectives (NFOs and the Annual Operating Plan). Senior leadership through the use of performance measures monitors performance and progress on S&H objectives and targets.
- IPMD: Salaried associates' performance appraisals are conducted through the IPMD, which addresses individual performance relative to S&H goals and behaviors.
- Associate Handbook: All associates can electronically access an Associate Handbook specific to their operation, which contains the disciplinary policy. Examples of unacceptable S&H conduct that could result in disciplinary action are identified in these documents, including:
 - a) Non-compliance with S&H policies, regulations, rules and work instructions;
 - b) Contributing to the falsification of records;
 - c) Failure to observe good housekeeping practices; and
 - d) Taking a negative action against an individual for exercising his/her right and responsibilities to report legitimate concerns, especially in the area of ethics, EEO, S&H, and security.
- Collective Bargaining Agreements: Collective Bargaining Agreements, applicable only to this location, require that all represented associates comply with S&H requirements. Furthermore, collective bargaining unit contracts and the Labor Relations Manual describe general and specific provisions for progressive and non-progressive disciplinary actions for S&H reasons.
- Self-Assessment: Management and associates participate in periodic S&H self-assessment activities to ensure their areas and operations are properly maintained (see Section 3.5).
- Job Descriptions: S&H responsibility is incorporated into all job descriptions for bargaining unit and salaried associates.

New associates, visitors, and subcontractors at the contractor are provided general site orientation and/or other information relative to S&H as summarized below:

- **Visitor Orientation:** Visitors to this location receive a brochure that covers security, safety and health, emergency evacuation routes, general plant information, pollution prevention, and emergency and useful telephone numbers. A video is available that summarizes this information. Visitors at the contractor receive an orientation, which covers similar topics. The visitor's host is responsible to assure this communication is completed.
- **New Hire Orientation:** New hire orientation is provided to all newly hired/rehired the contractor associates including a general S&H overview including information on the OSHA Hazard Communication Standard, Lockout Tagout (LOTO), emergency telephone numbers, appropriate responses to emergency announcements and property damage reporting. orientation also includes ISO 14001 and VPP information at this location.
- **Subcontractor Safety:** S&H requirements for construction and service subcontractors are summarized in Construction, Service Subcontract, and contractor Safety Handbooks as provided to subcontractors performing work at the contractor. Construction and service subcontractors at both locations are given safety orientations, which include construction safety, in-plant vehicle safety, LOTO, evacuation, and emergency procedures. All subcontractors at this location also receive an annual refresher on LOTO.

Current versions of approved documents are available in close proximity to functions and/or operations where they are essential to the effective functioning of the S&H management system. When documents are not directly distributed to functions and or operations, they are made available at centralized locations. Obsolete documents retained for legal and/or knowledge preservation are identified as obsolete or inactive for current use. Responsibility for control of obsolete documents is delegated to each system where these documents and data are promptly removed from all points of issue or use to prevent unintended use.

B.3.5.c DEPARTMENT/ACTIVITY:

The responsibility, authority, and interrelationship of all associates who manage, perform, and verify work affecting S&H performance is defined and documented in Section 3.0. managers carry the following responsibilities:

| Who | Responsible/Accountable for... |
|---|--|
| Functional managers/ managers/ Team managers (Line Management) | <ul style="list-style-type: none"> • Accepting responsibility and accountability for S&H performance associated with the work performed under their direct supervision, including: <ol style="list-style-type: none"> a) determining and allocating the resources necessary to comply with S&H related policies, laws, regulations, and program requirements; b) ensuring that associates operate in strict compliance with the policies and applicable procedural requirements in command media; c) making associates aware of their roles and responsibilities relative to the S&H programs, including emergency preparedness and response; |

| | |
|--|---|
| | <ul style="list-style-type: none"> d) determining and ensuring completion of training requirements for their associates; e) motivating associates to continually improve through encouragement to make suggestions to improve S&H performance and recognition for effecting associated improvements; and f) controlling processes, including suspension of operations for S&H reasons. |
|--|---|

The contractor has established and maintains ongoing S&H programs and implements projects to ensure that activities are carried out under specified conditions by:

- establishing and maintaining procedures to cover situations where their absence could lead to deviations from the S&H policies and S&H objectives and targets;
- stipulating operating criteria in procedures; and
- establishing and maintaining procedures related to the identified significant S&H hazards, risks and impacts of goods and services used by the organization and communicating relevant procedures and requirements to suppliers and contractors.

These activities cover operations, maintenance, capital projects, process changes, resource management, property management, new products and business, packaging and shipping, and management.

Procedures associated with each of the established S&H Programs are delineated in on-line Process Descriptions and Work Instructions in Command Media, including but not limited to the following topics.

| | | |
|--|--------------------------------------|--|
| • Accident/Incident Investigation | • Affirmative Procurement | • Workers' Compensation |
| • Combustible & Flammable Materials | • Chemical Carcinogen Control | • Dose Limits, Occupational Exposure & ALARA |
| • Electrical Safety | • Confined Spaces | • Emergency Wash Stations |
| • Ergonomics | • Emergency Management | • Equipment Safety |
| • Explosives | • S&H Command Media | • S&H Committees |
| • Hand/Portable Power Tools | • Fall Protection | • Fire Protection |
| • Hoisting & Rigging | • Hazard Abatement | • Hazard Communications |
| • Ladder Safety | • Job Hazard Analysis | • Laboratory Safety |
| • Lockout/Tagout (LOTO) | • Laser Safety | • Lessons Learned |
| • Noise Control & Hearing Conservation | • Machine Guarding/Tagging | • Personal Protective Equipment |
| • Pesticides/Toxic Substances | • Occupational Medicine | • Pressure Safety |
| • Respiratory Protection | • Risk Management Pre-Planning (PHA) | • Safety Tags |
| • Sanitation & Health | • Service contractor Safety | • Temperature Extremes |
| • Vehicles | • Ventilation | • |

Additionally, the contractor has a series of internal permits to assure control of specific hazards during performance of work. Most of these permits are used exclusively at this location but a few are also used. The permits at both operations require S&H approval prior to the work being performed. Permits in use include:

| | | |
|-----------------------------------|--|------------------------------------|
| • excavation permits | • permit for energized electrical task | • construction safe work permit |
| • hot work permit | • life safety aisle/exit impairment permit | • fire protection shutdown request |
| • confined space permit | • unattended equipment operating permit | • Beryllium work permit |
| • safety monitoring system permit | • High Voltage Pre-Job Safety Briefing Check sheet | |

B.3.5.d TASK/WORKER:

The responsibility, authority, and interrelationship of all associates who manage, perform, and verify work affecting S&H performance is defined and documented in Section 3.0. All associates carry the following responsibilities:

| Who | Responsible/Accountable for... |
|----------------|--|
| All Associates | <ul style="list-style-type: none"> • Committing and adhering to S&H related policies, values and requirements, by: <ul style="list-style-type: none"> a) accepting accountability, within the scope of their responsibilities, for S&H performance; b) taking responsibility for S&H improvements; c) anticipating and initiating action including suspension of operations to preclude any nonconformance relating to the S&H management system; d) identifying and recording any S&H problems; e) initiating, recommending, or providing solutions to those problems and verifying the implementation of solutions; and f) controlling further S&H program activities related to an area of non-conformance until the deficiency or unsatisfactory condition has been corrected. |

Corporate has established clear expectations for associates to follow the documented procedures to assure compliance with S&H requirements and the protection of associates, the plant, the community, and the environment. Associates have expectations established in their job descriptions that state:

"Conducts activities in a safe and healthy manner and works in accordance with established S&H requirements to ensure protection of associates, the public, and the environment. Takes actions necessary to "stop" work when an unsafe condition or action is identified. Every associate has the right and responsibility to stop work when unsafe conditions or actions are identified."

The contractor is committed to providing a safe and healthy environment for its associates. Associates are trained to do their jobs correctly, to use required safety and health equipment properly, and to perform work in a safe manner. Associates must follow S&H regulations and work rules. S&H work rules are found in the Associate Handbook and Command Media. Additional rules are found in other job instructions such as, JHAs, Process Engineering Specifications (PES), General Process Instructions (GPI), job aids, Travelers, Material Safety Data Sheets, high voltage work switching instructions, and manufacturer's operating instructions.

Disciplinary action – up to and including termination – may be taken for violations of S&H regulations and work rules. The severity of the discipline is discretionary and will depend on many factors including the nature and cause of the violation.

These expectations align with the Secretary of Energy's "Zero-Tolerance" policy for accidents resulting in life-threatening injuries or serious environmental impact. Additional information regarding S&H responsibilities and accountability is included in Section 3.0.

Personnel whose work relates to significant S&H hazards, risks, and impacts have received appropriate training. Line management determines required training with the assistance of S&H subject matter experts. The competency of personnel performing tasks that relate to significant S&H hazards, risks and impacts is established on the basis of appropriate education, training, and/or experience and associated training records are maintained.

This location associates have been trained and performed skills practice on intervention skills and expectations. The focus of this training program was to assure associates knew that safety intervention was a management expectation and that they were capable of giving and receiving this information.

Behavior based safety, titled BSAFE (Behavioral Safety for Everyone) is a proactive program where associates observe other associates regularly and observe specific on the job behaviors that have the potential to be precursors to accidents and injuries. A "no name, no blame" system, these observations strive to encourage safe behaviors and discourage at risk behaviors. In this way, positive reinforcement is given with the intention to prevent accidents before they happen.

B.3.6 FEEDBACK AND IMPROVEMENT

B.3.6.a SITE:

NNSA provides a Performance Evaluation Report annually with interim reports also provided to the contractor. These reports provide feedback at the site level detailing any problems, concerns, or issues and also document accomplishments.

DOE and NNSA audit the operations for S&H compliance and Integrated Safety Management implementation. These audits are performed by various organizations including Office of Oversight and Performance Assurance and contractor Performance Assessments.

B.3.6.b FACILITY:

The contractor is in the process of defining a contractor Assurance System (CAS) as required by NNSA. S&H has provided substantial input and models for this system, which is based on Command Media and the processes defined within Command Media. A flow model was prepared for each business function within the Command Media structure and each process has been evaluated under the CAS requirements to identify a risk and control level. The higher risk processes were subsequently analyzed to assure that adequate controls (metrics, assessments, reviews) are in place to assure NNSA that the high risk processes are controlled. Modifications have been made to Command Media to allow linkages, input of data, and tracking and trending of performance. The contractor is continuing to develop the CAS model. while awaiting final guidance from NNSA

Corporate completes an Assurance Tool and Letter process annually for all operations including this location and the contractor. The Assurance Tool is a questionnaire, completed through an Internet application. The Tool has questions in various categories including environmental, safety, and health. The questions are based on regulatory and corporate expectations. Upon completion of the questionnaire, the contractor submits these questionnaires to Corporate. Then an Assurance Letter is prepared and signed by the contractor president. This letter outlines any compliance issues at operations. This is submitted to the Strategic Business Unit leader for forwarding to Corporate.

As a business driver S&H has established key performance indicators around safety and health, waste generation, environmental performance, and property loss. These measurements and associated trend data are reviewed regularly by the senior leadership in the monthly S&H Executive Committee and through the semi-annual management review process.

Senior leadership reviews the S&H management system, to ensure its continuing suitability, adequacy, and effectiveness through monthly S&H Executive Committee meetings as well as twice each year through the Management Review process conducted at each location. These reviews involve the collection of the information necessary to allow management to carry out this evaluation and records of this review are documented.

S&H Executive Committee meetings are conducted each month involving S&H leadership, divisional S&H representatives, bargaining unit leadership and contractor senior leadership staff. The contractor participates in this meeting via teleconference. Information relating to the S&H management system is presented at these meetings to provide the foundation for review and its continual improvement. Consideration is given, but is not limited to, the items from the following list in selecting topics to be discussed at the S&H Executive Committee meetings.

- S&H Management System and changes to the system,*
- S&H requirement changes,
- S&H performance data relative to objectives, targets and metrics,*
- changes to S&H programs,
- changes in the contractor activities effecting S&H programs,
- corrective action and lessons learned from S&H incidents,*
- advances in S&H technologies,
- internal audit results,*
- concerns of customers or other interested parties,* and
- S&H awards and recognition.

(* Mandatory topics to be addressed at least twice each year)

Minutes and associated records of the S&H Executive Committee meetings are maintained.

Twice a year at each location, the contractor also holds Management Review meetings as required by ISO 9001 & 14001. The general purpose of these reviews is to assess and report on the performance of the management systems to senior leadership, to ensure the continued suitability and effectiveness of the systems in satisfying requirements and to serve as the basis for continuous improvement of the systems. Summary results of the S&H Executive Committee meetings are integrated into the management reviews. Assessment of the continued suitability, adequacy, and effectiveness of the S&H management system is included within the overall systems evaluation in this management review. Continuous improvement activities for both systems are identified and tracked.

The Management Review process is documented in Section 5.6 of this location's ISO 9001 *Quality Manual* and section 4.1.3 of ISO 9001 *Quality Manual*. Records of these management reviews are also maintained in accordance with the Records Management

process. Minutes of each meeting are distributed along with action items assigned during the meeting.

The contractor plans, performs, and documents S&H management system audits in accordance with established procedures. These processes cover the audit scope, frequency and methodologies, as well as the responsibilities and requirements for conducting audits and reporting results. These audits are carried out to—

- Determine whether or not the S&H management system:
 - a) conforms to planned arrangements for S&H management including the requirements of ISO 14001 and VPP;
 - b) has been properly implemented and maintained; and
- Provide information on the results of the audit to management for review.

An audit schedule is maintained to ensure ongoing evaluation of the S&H management system.

Assessment of the S&H management system is also performed at the contractor through the following programs and processes:

- VPP program self evaluations,
- subcontract third-party assessments of specific functions including ISO 14001 certification/periodical audits,
- evaluation of specific S&H programs,
- Corporate International audits including HS&E compliance audits and HS&E management system reviews, and
- third party assessments funded by Corporate International.

The contractor has established and maintains procedures, programs and other formal mechanisms for internal and external communications regarding its S&H management system, S&H program, and associated hazards, risks and impacts. These mechanisms facilitate:

- internal communication between the various functions and levels of the organization, and
- external interactions, including receipt, documentation and response to communication received from external interested parties.

Internal and external communication is accomplished using the following approaches:

- S&H Concern Lines ({816} 997-3181 at this location and {505} 844-2009 at the contractor) which allow associates to express concerns or ask questions regarding S&H issues. Questions and/or concerns received via the concern line are forwarded to the appropriate S&H professional for response and feedback.
- Emergency management, which communicates hazard assessment results, emergency plans and toxic release reports to local agencies, response organizations and community planning committees.
- S&H committees, which address S&H issues that impact the contractor. These committees provide an opportunity to expand associate involvement and facilitate communication among all parties involved in S&H activities
- DOE VPP administered by a joint labor-management team that works to increase the collective understanding and awareness of S&H throughout this location.
- Accident/Incident Investigation Program: Results of accident and incident (injury/illness, property damage, and near miss) investigations are shared with the appropriate target audiences through a lessons learned program.
- S&H Web page: The S&H web page is located on the contractor Intranet. This resource provides access to listings of S&H services, S&H information, command media, lessons learned, safety performance data, safety alerts, S&H plans, an S&H calendar, presentations, and S&H contacts. It also provides a mechanism for associates to provide feedback to S&H.
- Emergency hotlines: At this location, hotline numbers are provided for spills (7745 or "SPIL") and other emergencies (3600 to reach Patrol HQ) which are answered 24 hours a day to facilitate immediate emergency response actions. Security and S&H pager numbers are provided at the contractor for 24-hour notification and assistance.
- Information centers and Federal bulletin boards: S&H posters and information are displayed in information centers located throughout this location including:
 - a) Poster for "Occupational Safety and Health Protection for DOE contractor employees at government-owned contractor-operated facilities" which identifies associates' rights to report unsafe acts or conditions without fear of reprisal,
 - b) Posters for state worker's compensation programs encouraging associates to contact the state with concerns related to occupational injuries/illnesses including:
 - State Department of Labor and Industrial Relations Division of Workers' Compensation (this location)

- State Worker's Compensation Commission, and
- c) The Corporate Commitment to Health, Safety & the Environment.
 - Complaints: If associates feel their concerns are not being adequately answered, they may either file a written complaint to the local NNSA office and/or telephone the Office of the Inspector General and the Chief Health, Safety and Security Officer, in Washington, D. C. (1-800-541-1625)
 - Contractor Safety Symposium: All active contractors and those who are interested in working at this location are invited to an S&H symposium. Accident data is discussed as well as presentation of other S&H topics including VPP and ISO 14001. These events also include issuance of a contractor Safety and Health award.
 - Various other S&H communication activities are also coordinated by the Public Affairs organization, including, but not limited to:
 - a) Community relations, involving public release of information about environmental concerns including publication of a quarterly *Focus* newsletter, which is widely distributed throughout the local community and made available to associates;
 - c) Internal communication, including *Newsbreak* and *Quest* publications, closed-circuit TV, a face-to-face 'Two-Way Communication' program, information centers and bulletin boards located throughout the plant, and *Comments, Please!*, an anonymous associate concern line;
 - d) Media relations, involving communication with external news media, including Emergency Press Center capabilities for emergency operations; and
 - e) Periodic special events such as Earth Day activities and other community involvement and awareness campaigns.

Positive feedback for following S&H requirements, as well as helping to develop or improve S&H programs, is provided on both a formal and informal basis. All associates are eligible to receive any of a number of substantial awards under rewards and recognition program. S&H performance and contributions are among the eligibility criteria for various types of the awards, including the following:

| | |
|-----------------------|--------------------|
| • Special Recognition | • Above and Beyond |
| • Jack A. Knuth Award | • Spot Recognition |

| | |
|---|---|
| <ul style="list-style-type: none">• Associate Recognition | <ul style="list-style-type: none">• Significant Technical Achievement Rewards and Recognition (STARR) program |
|---|---|

B.3.6.c DEPARTMENT/ACTIVITY:

The Quality Assurance program also includes auditing of S&H programs and activities and operations. This program includes independent oversight audits of S&H activities and operations to assess adequacy and conformance to established requirements, procedures, specifications, and quality objectives. The frequency of these audits is based on applicable requirements, the importance of the activity concerned, identified needs of the organization to be audited, and the results of previous audits.

The auditing organization is independent of organizations having direct responsibility for the activity being audited. Each activity is audited against requirements found in the Operating Requirements Database. Audit results are documented in formal reports and associated records are maintained. Both management and responsible associates are notified of audit results and timely cause analysis and corrective action is required for deficiencies. When corrective action is required, follow-up verification audit activities record the implementation and effectiveness in accordance with documented processes.

Corrective actions from compliance monitoring activities and S&H management system self-assessments are formally identified, tracked and documented through the Corrective and Preventative Action Process. This process provides for team-based Root Cause Analysis, identification of related issues through assessment of global impacts, and the issuance and tracking of Corrective Action Reports (CARs) through closure. S&H program revisions and projects initiated as a result of audits, inspections, self-assessments and/or to close-out associated CARs are administered through the requirements identification and communication, prioritization, and financial systems as needed to ensure compliance with applicable S&H requirements. Furthermore, all assessment results and associated corrective action initiatives are made available to the NNSA.

The contractor has established and maintains procedures, and defined responsibility and authority, for handling and investigating nonconformance, taking action to mitigate any impacts caused, and for initiating and completing corrective and preventive action. These procedures, including Hazard Abatement process, make provisions for taking corrective or preventive actions as necessary to eliminate the causes of actual and potential nonconformance to the degree appropriate to the magnitude of problems and commensurate with the S&H impact encountered.

Procedures for corrective action include:

- effective handling of customer complaints and reports of S&H nonconformities;

- investigation of the causes of nonconformities relating to accidents/incidents, property damage, permit excursions, spills, beneficial occupancy inspections, annual S&H inspections, internal/external audits, associate concerns/near misses, customer complaints and trends identified during the management review process;
- determination of the corrective action needed to eliminate the cause of nonconformity; and
- application of controls to ensure that the corrective action is taken and that it is effective.

Procedures for preventive action include:

- use of appropriate sources of information as needed to detect, analyze, and eliminate potential causes of nonconformities using a formal lessons learned process that ties to the DOE-wide lessons learned system;
- determination of the steps needed to deal with any problems requiring preventive action;
- initiation of preventive action and application of controls to ensure that it is effective; confirmation that relevant information on action taken is submitted for management review; and
- classification of nonconformities based on severity to ensure that corrective actions are commensurate with the impact to the associates, facility, public, and environment.

Associated nonconformance and corrective and preventive action records are maintained.

Formal S&H programs, as addressed below, include many types of surveys and inspections conducted against the Operating Requirements and designed to measure conformance and monitor activities relative to S&H hazards, risks and impacts.

Noise Evaluation: Specific locations requiring use of hearing protection have been identified. Furthermore, routine annual monitoring is performed in all production areas and after any change in production, process or equipment which could significantly change noise exposure. Monitoring results can initiate the requirement for additional area mapping or personal dosimetry to be performed.

Lead in Construction/Maintenance: At this location, comprehensive surveys and monitoring are conducted to assess exposure potential to lead from maintenance and construction activities. Results of the assessment are utilized to ensure identification and proper use of personal protective equipment or that engineered controls are implemented.

Safety & Housekeeping Implementation Needs Everyone (SHINE): An effort is underway to consolidate annual S&H Inspections, Environmental Self Assessment

Program checks, and Management Observing and Promoting Safety tours into one program called SHINE. This new tool will be simpler while providing a better understanding of facility hazards and opportunities for intervention. These inspections are to be conducted by a multidisciplinary team of S&H, Management, operations, and hourly associates. These inspections include a walk-through of departments and areas to review the physical condition of the area and equipment. A formal report is issued, and the specific departments respond to corrective actions.

Subcontractor Safety: Oversight, coordination and enforcement of subcontractor safety are handled by S&H at this location. The subcontractor is also required to perform job-site inspections and to correct any violations.

On site Reviews/Beneficial Occupancy Inspections: After the completion of major renovations or construction projects, a multidisciplinary S&H inspection is performed prior to occupancy.

Ventilation Reviews: Ventilation systems used for health protection are surveyed for adequacy by the Safety & Health departments.

Medical Surveillance Examinations: Medical surveillance examinations are conducted to address a variety of potential occupational exposures. In addition, consistent with the Americans with Disabilities Act requirements, physical examination and worksite evaluations ensure that work can be performed in a safe manner. The following are examples of surveillance examinations conducted:

- Beryllium
- Chromium,
- Hazardous Materials (HAZMAT),
- Laser Eye,
- Lead,
- Methylenedianiline (MDA),
- Respirator Approval,

Exposure Assessments: Contractor operations, changes in processes, equipment and chemical use, as identified through the PHA process, are subject to an exposure assessment. This process assesses the potential for associate exposure to chemical/physical hazards and identifies necessary controls such as PPE, engineering controls and/or personnel monitoring.

Environmental Monitoring: Routine monitoring is conducted with respect to environmental program activities at this location, including:

- hazardous waste storage,
- wastewater discharges,
- air emissions, and
- groundwater contamination.

Equipment used for S&H monitoring and measurement purposes, including various instruments, tools, equipment, and systems is calibrated in accordance with associated work instructions and process descriptions and corresponding records are retained.

Associates can call extension 3999, Comments Please, and leave a message for senior leadership team response. These questions can pertain to anything including S&H issues. The message can be left anonymously or with a name for a personal response.

Annually, a review of occupational injuries/illnesses is also conducted to determine countermeasures needed to reduce injury/illness rates.

B.3.6.d TASK/WORKER:

Associates are empowered to take immediate action to correct identified hazardous conditions, stop work, and to notify line management. Associates have the option of reporting through the S&H Concern/Near-miss telephone line, providing input via the S&H web page, or submitting a written report to S&H or line management.

Maintenance associates have the opportunity to provide feedback on each maintenance work order within Maximo. At the completion of a work order, a feedback screen is available to the associates to input any issues, concerns, or suggestions that could be addressed the next time the work is to be completed.

Associates are required to complete an annual review of all JHAs that apply to their work. As part of this review they have the ability to provide suggestions for modifications to assure the JHA adequately covers the hazards and controls of the specified task.

Anytime there is an S&H concern, associates are encouraged to contact S&H directly or through their management, the S&H Concern Line, or the S&H Web Response Page. S&H tracks and assures responses are made when concerns are received.

B.4 REFERENCES

DOE P 450.4, *Safety Management System Policy*, dated 10-15-96.

48 CFR (DEAR) 970.5204-2, *Integration of Safety, and Health into Work Planning and Execution*, August 1997.

The International Standard ISO 14001, September 1, 1996.

DOE/EH-0433 Voluntary Protection Program (VPP) - Part I: Program Elements, October 1994.

APPENDIX A to EXAMPLE B

ENVIRONMENT, SAFETY AND HEALTH MANAGEMENT PROGRAM MAINTENANCE, CHANGE CONTROL, AND REVIEW PROCESS

This example of a contractor “S&H Management Program” was developed, maintained, reviewed and approved in accordance with the requirements of contract No. DE-xxxx-xxxxxxxxxx. The following process documents the methodology by which the contractor maintains the “S&H Management Program” (Program).

A. Program Maintenance

1. The Program will be maintained in accordance with established procedures and controls outlined in the contractor business model and contractual requirements.
2. The Program will be revised to reflect the contractor operations risk to the environment and safety and health of associates and the public, as necessary.
3. Revisions and/or modifications to the plan will be reviewed and approved by the contracting officer or his/her delegated representative prior to incorporation.
4. This location S&H Organization is accountable for maintaining the Plan.

B. Program Modification

1. Revisions to the Program will be made, as appropriate, during the Fiscal Year to reflect ongoing modifications of the contractor S&H Management System.
2. Annually, the S&H Organization will perform a comprehensive review of the contractor Management Systems to ensure the Program adequately reflects operations and controls.

C. Program Revision and Approval

1. The manager, S&H Operations, will review and approve all modifications to the Program prior to submittal to NNSA.
 - a. Minor revisions - Editorial or minor process improvements that do not change context or concept will be reviewed, approved, and incorporated to the Program without NNSA approval. Reference to these changes/revisions will be identified and communicated to the NNSA during the annual Program review process.

- b. Major revisions – Significant operational changes and/or issues impacting approved S&H Thresholds will require written NNSA contracting officer approval.
 - c. Annual review – In accordance with contractual requirements, the Program will be reviewed and submitted for NNSA contracting Officer approval annually.
2. The manager, S&H Operations, will transmit major revisions and annual Program updates to the NNSA-LSO for review and approval.
- a. Major revisions – Operational modifications or management system modifications that impact S&H Thresholds or represent significant risk will be formally transmitted to NNSA for review and approval prior to implementation. The transmittal will include a summation of the process modification or operational change and mitigating factors and plans.
 - b. Annual review – The S&H Organization will perform the annual Program review and submit the draft Program to NNSA/LSO by July 15 of each year. The final Program will be submitted by September 1.

APPENDIX B to EXAMPLE B

ES&H FY04 CRAD/SSPMs

(Criteria Review and Approach Documents (CRAD)/site Specific Performance Measures (SSPM))

Integrated Safety Management (CRAD)

OBJECTIVE

The contractor ensures that the Integrated Safety Management System (ISMS) is maintained, current, and effective and that information is readily available for NNSA review.

Criteria

1. The Operating Requirements Database is updated annually and maintained throughout the year, and all changes to the database have contracting Officer written approval.
2. The S&H Management Program is submitted on schedule and reflects accurate, current conditions.
3. Indicators of ISM system effectiveness are maintained, accurate, and current. Relevant records reflect continuous improvements under ISMS.
4. Support is provided for the annual ISMS update process.
5. Work activities reflect effective implementation of the five functions and seven principles of ISMS. Hazards are analyzed and controls are developed and implemented. Personnel are trained commensurate with their responsibilities.
6. Priorities are balanced within the ISMS and accurately reflect commitments made within the S&H budget submission.
7. Roles and responsibilities are clear and line management is responsible for S&H.
8. An effective process for S&H self-assessment, feedback and improvement is maintained.
9. Work occurs within the established thresholds and contractor authorization systems, in accordance with the approved S&H Management Plan.
10. Effective corrective actions to DOE-cited S&H issues are developed and implemented.

Fire Protection (SSPM-1)

OBJECTIVE

The contractor complies with contractually mandated fire protection laws, codes, standards, regulations, and the applicable portions of mandated DOE Orders relating to fire protection.

Criteria

1. A Fire Protection Program is in place that ensures compliance with contractually mandated laws, codes, standards, regulations, and the applicable portions of mandated DOE Orders.
2. Assessments are performed on design modifications and new facilities to ensure compliance with mandated codes.
3. Adequate evaluation will be accomplished to ensure that managed and operated facilities maintain a preferred or improved risk status as defined by Factory Mutual or other competent organization.
4. Members of the fire response organization are provided with refresher training specific to their assigned duties.
5. Detection and suppression systems are maintained in accordance with mandated codes.

Industrial Safety (SSPM-2)

OBJECTIVE

The contractor complies with contractually mandated Industrial Safety laws, codes, standards, regulations, and the applicable portions of mandated DOE Orders relating to industrial safety.

Criteria

1. An Industrial Safety Management Program is in place that ensures compliance with mandated codes, standards, and regulations.
2. An effective and efficient S&H Self Assessment process or an integrated set of processes is implemented to identify, fix less than acceptable S&H conditions, and provide feedback.
3. Design modifications are evaluated for compliance with applicable codes and mandated DOE Orders.

4. Management is actively involved in oversight and evaluation of safe working conditions and actions. S&H organization is staffed and structured to support management.
5. Upper-level Management actively and positively reinforces proper safety behavior and practices through the Management Observing and Promoting Safety program, or substantially equivalent programs, and maintains a visible S&H presence in plant and facility operating areas.
6. Third parties are effectively used in the primary evaluation of safety program performance.
7. Oral notifications and written submission of incident reports and injury/illness notifications are accomplished in accordance with mandated requirements.

Construction Safety (SSPM-3)

OBJECTIVE

The contractor complies with contractually mandated Construction Safety laws, codes, standards, regulations, and the applicable portions of mandated DOE Orders relating to construction safety. The contractor additionally ensures that all reasonable steps are taken to set and communicate expectations for subcontractor safety performance to drive toward "world class."

Criteria

1. A construction safety management program is in place to ensure compliance with mandated codes and standards.
2. An effective and efficient self-assessment process or an integrated set of processes is implemented to find, provide feedback, and fix less than acceptable S&H performance by both the contractor and its subcontractors.
3. Design modifications and new construction projects are evaluated for sound construction principles, maintainability, and code compliance.
4. Management is actively involved in oversight and evaluation of working conditions.
5. Oral notifications and written submission of incident reports and injury/illness notifications are accomplished in accordance with mandated requirements.

Explosives Safety (SSPM-4)

OBJECTIVE

The contractor complies with contractually mandated Explosives Safety laws, codes, standards, regulations, and DOE Orders and the applicable portions of the DOE Explosive Safety Manual relating to explosives safety.

Criteria

1. An Explosives Safety Program is in place to ensure compliance with contractually mandated laws, codes, standards, regulations, DOE Orders, and the applicable portions of the DOE Explosive Safety Manual.
2. Assessments are performed on new explosives facilities, modifications to existing explosives facilities, and new or changed explosives operations to ensure compliance with mandated codes.
3. Explosives workers and supervisors are provided with appropriate training commensurate with their responsibilities.
4. Management is actively involved in oversight and evaluation of working conditions.
5. Oral notifications and written submission of incident reports and injury/illness notifications are accomplished in accordance with mandated requirements.

Firearms Safety (SSPM-5)

OBJECTIVE

The contractor complies with contractually mandated Firearms Safety laws, codes, standards, regulations, and the applicable portions of mandated DOE Orders relating to firearms safety.

Criteria

1. A Firearms Safety Program is in place to ensure compliance with contractually mandated laws, codes, standards, regulations, and the applicable portions of mandated DOE Orders.
2. Appropriate training is provided to all personnel who handle, maintain or use firearms.
3. Management is actively involved in oversight and evaluation of working conditions.

4. Oral notifications and written submission of incident reports and injury/illness notifications are accomplished in accordance with mandated requirements.

Industrial Hygiene (SSPM-7)

OBJECTIVE

Chemical, biological, physical, and ergonomic stresses arising in the workplace are identified, evaluated and controlled.

Criteria

1. Exposure assessments are performed based on recognized exposure assessment methodologies and using accredited industrial hygiene laboratories.
2. Industrial Hygiene instrumentation is calibrated, maintained, and operated in a manner that facilitates accurate and precise measurement of personal exposure and work areas.
3. Occupational health exposures are minimized through an appropriate combination of engineering controls, administrative controls, and personnel protective equipment.
4. An internal self-assessment program is maintained for evaluating the effectiveness of the Industrial Hygiene Program.
5. Effective worker education, training and involvement is provided to ensure that associates understand the hazards they may encounter while performing their assigned tasks and know the precautions that must be taken to perform the tasks safely.
6. Records are maintained in accordance with applicable requirements and this information is readily accessible.

Occupational Medicine (SSPM-8)

OBJECTIVE

The contractor workforce is provided with health care commensurate with industry standards.

Criteria

1. An awareness of the work environment is maintained by conducting periodic worksite visits, establishing a way to obtain hazards information and participating in safety and other occupational health related meetings.

2. An assessment of the relationship between the potential job hazards and the physical and mental capabilities of employees is performed to determine the appropriate placement of employees in work that is consistent with the American's with Disabilities Act (ADA) of 1990.
3. Initial and continual assessment of the health of employees is performed for the purpose of providing early detection, treatment and rehabilitation of employees who are ill, injured or otherwise impaired.
4. The privacy of employees and the confidentiality of their medical records are maintained.
5. Emergency and disaster preparedness is provided and integrated with both the Area Hospital Association (AHA) Disaster Plan and comparable local disaster plans in this State.
6. A competent staff of professionals and support personnel is provided to meet the plant's need. Local, state, and federal licensing and continuing medical education requirements are met.

Emergency Management (SSPM-9)

OBJECTIVE

The contractor complies with applicable emergency management laws, regulations, and the DOE Order on Occurrence Reporting. Each respective facility will follow individualized Industrial Standards Emergency Management plans.

Criteria

1. An Emergency Management Program is in place to ensure compliance with applicable federal, state and local regulations.
2. The site Hazard Assessment, Emergency Plan, and Command Media (Work Instructions and Process Description) are reviewed annually and updated. Emergency Management Vital Records for contractor managed facilities are part of the Emergency Plan. Emergency Management documents for lower hazard level facilities will be reviewed and updated every 3 years.
3. Drills are conducted annually and full participation exercises are conducted every other year (for this location) with lessons learned reports developed, distributed, and used to improve the Emergency Management Program.
4. Members of the Emergency Response Organizations are provided with refresher training.

5. Oral notifications and submissions of Daily Operations and Event Reports (DOER) and Occurrence Reporting and Processing System (ORPS) reports are timely. ORPS reporting will meet the DOE O 232.1A and site specific criteria.
6. The annual Emergency Readiness Assurance Plan (ERAP) is published in a timely manner (September of each year).

APPENDIX C to EXAMPLE B
HAZARD IDENTIFICATION AND CONTROL DECISION MATRIX

