

**Integrated Safety Management Program  
Incorporating Worker Safety and Health Program Requirements**

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**10/28/2020**

Effective Date

Functional Category: Environment Safety and Health
Organization: Mission Assurance

This document has been reviewed by a CNS Dual Authority DC/RO and confirmed to be UNCLASSIFIED and contains no UCNI.

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History			
Rev. #	CR #	Change	Sections Affected
002	e-5976	Periodic review and update, including signature page.	All
001	U-57165	New enterprise strategy document that supersedes CNS MNL-352254.	All

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<b>Acronyms List</b>	
<b>Acronym</b>	<b>Term</b>
ACGIH	American Conference of Governmental Industrial Hygienists
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ATLC	Atomic Trades and Labor Council
CA/MP	Causal Analysis/Mistake Proofing
CAS	Contractor Assurance System
CFA	Causal Factors Analysis
CFR	Code of Federal Regulations
CNS	Consolidated Nuclear Security, LLC
DEAR	Department of Energy Acquisition Regulation
DNFSB	Defense Nuclear Facilities Safety Board
DOD	Department of Defense
DOE	Department of Energy
DSA	Documented Safety Analysis
EA&O	Enterprise Assessments and Oversight
EM	Emergency Management
EMS	Environmental Management System
ES&H	Environment, Safety and Health
FS	Facility Safety
HA	Hazard Analysis
HA/WI	Hazard Analysis/Work Instruction
HEU	Highly Enriched Uranium
HIPAA	Health Insurance Portability and Accountability Act
HQ	Headquarters
HRP	Human Reliability Program
IGUA	International Guards Union of America
ISM	Integrated Safety Management
ISO	International Organization for Standardization
JHA	Job Hazard Analysis
KBCTC	Knoxville Building and Construction Trades Council
MTC	Metal Trades Council of Amarillo, Texas and Vicinity AFL-CIO
NFPA	National Fire Protection Association
NNSA	National Nuclear Security Administration
NPO	NNSA Production Office

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<b>Acronyms List</b>	
<b>Acronym</b>	<b>Term</b>
OMD	Occupational Medical Director
OSHA	Occupational Safety and Health Administration
PBS	People Based Safety
PD	Process Document
PEL	Permissible Exposure Limit
PGU	Pantex Guards Union
PHA	Process Hazard Analysis
PPE	Personal Protective Equipment
QA	Quality Assurance
RFP	Request for Proposal
RVP	Readiness Verification Program
S&H	Safety and Health
SA/PR	Subcontract Administrator/Procurement Representative
SAA	Startup/Restart Authorization Authority
SAR	Safety Analysis Report
SME	Subject Matter Expert
SOW	Statement of Work
SPOMC	Safety Performance Objectives, Measures and Commitments
SSC	Structures, Systems, and Components
STR	Subcontract Technical Representative
TLV	Threshold Limit Value
TPD	Training Program Description
TSR	Technical Safety Requirement
USQ	Unreviewed Safety Question
USW	United Steel Workers
VPP	Voluntary Protection Program
WI	Work Instruction
WS&H	Worker Safety & Health

## Integrated Safety Management Program Incorporating Worker Safety and Health Program Requirements

### 1. Introduction

CNS assumed responsibility for management and operations at the Pantex Plant and the Y-12 National Security Complex on July 1, 2014. CNS operates these two sites under a single contract, with a focus on the four imperatives of safe, secure, zero defects, and deliver as promised.

The Pantex Plant, located near Amarillo, Texas, and the Y-12 National Security Complex (Y-12) located in Oak Ridge, Tennessee, are key sites in the U.S. Nuclear Security Enterprise, charged with maintaining the safety, security, and effectiveness of the U.S. nuclear weapons stockpile. For more information on each site, visit <https://pantex.energy.gov> or <https://www.y12.doe.gov/>.

CNS is committed to maintaining robust environmental, safety, and health (ES&H) programs, and has established safety as the first imperative of the corporation, as documented in the model (Figure 1) of the strategic plan.

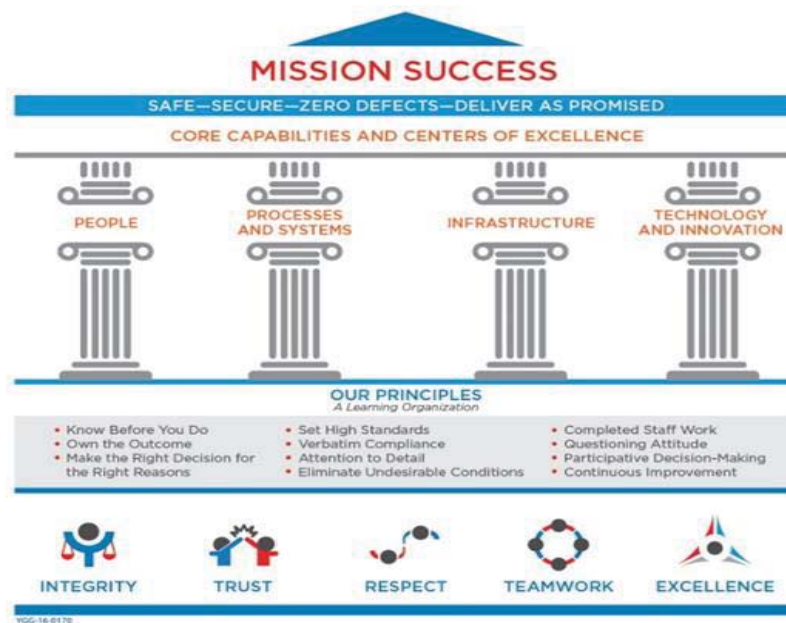


Figure 1- CNS Strategic Plan Model

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Pantex and Y-12 are currently “covered workplaces” as defined by 10 CFR 851.3(a), “a place at a DOE site where a contractor is responsible for performing work in furtherance of a DOE mission.” These two sites are primarily DOE NNSA manufacturing facilities that play an integral role in DOE’s Nuclear Weapons Complex. At the site level, NPO is responsible for the management and oversight of Pantex and Y-12.

CNS employs approximately 8,800 full-time personnel, comprised of an exempt, non-exempt/non-bargaining, and bargaining workforce. Approximately 3,600 personnel are located at Pantex; approximately 5,200 personnel are located at Y-12. In addition, CNS generally utilizes the services of numerous cleared and un-cleared subcontractors to perform various projects and tasks, including construction projects.

Critical roles performed at the sites include, but are not limited to: providing critical elements of NNSA’s missions that ensure the safety, reliability, and performance of the U.S. nuclear weapons deterrent; supplying the special nuclear material for use in naval reactors; national security including promoting international nuclear safety and nonproliferation, and reducing global dangers from weapons of mass destruction; supporting U.S. leadership in science and technology; supporting the Research Reactor programs for U.S. and international customers; and supplying Joint Test Assembly support for DOD customers.

### **2. Purpose**

This document serves to implement the requirements of 48 CFR 970.5223-1, Integration of Environment, Safety, and Health into Work Planning and Execution, and 10 CFR 851 Worker Safety and Health Program. This document describes an ISM Program, that incorporates the applicable requirements of 10 CFR 851, for the purpose of ensuring safety is integrated into work performed at the DOE sites currently managed and operated by CNS under prime contract DE NA0001942.

### **3. Scope**

The CNS ISM program represents the overall umbrella for managing environment, safety, and health, and includes applicable 10 CFR 851 Worker Safety and Health Program requirements.

The CNS ISM program described in this document is a standards-based system consistent with the worker safety and health policies, rules, orders, manuals, and standards (simply referred to as standards) that are applicable to DOE sites. The implementation of these standards enables CNS to conduct work in a manner that ensures protection of its workers, the public, and the environment.

The CNS ISM infrastructure includes enterprise and site-level programs that prescribe the processes for business and program management, prioritization and allocation of resources, budget and cost management, identification of DOE or NNSA requirements and regulations, and specific ES&H management programs, procedures, and requirements at the site, facility, and activity/task-levels.

The requirements of 10 CFR 851 do not apply to the following:

- Work at a DOE site that is regulated by OSHA (10 CFR 851.2(a)(1)).

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- Work at a DOE site that is operated under the authority of the Director, Naval Nuclear Propulsion, pursuant to Executive Order 12344, as set forth in Public Law 98–525, 42 U.S.C. 7158 note (10 CFR 851.2(a)(2)).
- Radiological hazards (to the extent regulated by 10 CFR Part 20 and 835) or nuclear explosives operations (to the extent regulated by 10 CFR Parts 820 and 830) (10 CFR 851.2(b)).
- Transportation to or from a DOE site (10 CFR 851.2(c)).
- Activities by employees of other federal, state or local government agencies or government corporations (e.g., Department of Defense (DOD), Army Corps of Engineers, Tennessee Valley Authority) except when covered by a coordination agreement, memorandum, or equivalent.
- Site visitors, students, visiting scientists, and others not under contract with CNS.
- CNS work activities not performed on a DOE or NNSA owned, leased, or controlled site.
- Construction and maintenance of facilities on property deeded by DOE or NNSA to third parties (e.g., the Jack Case Center and New Hope Center).

In addition, the following site activities are not covered by 10 CFR 851 but are subject to the safety and health requirements (including Integrated Safety Management) implemented in the applicable terms and conditions of their contract(s) with CNS:

- Activities by subcontractors that are providing operation and maintenance services for commercial items (e.g., X-ray technicians, machine tool technicians, fax/copier technicians, repair services for equipment under warranty, training activities for equipment operation).
- Activities by vendors or suppliers coming on-site who do not have service contracts and who engage in no more than incidental work relating to delivery, installation or repair of the products provided.

#### **4. Strategy**

This document identifies and establishes the organizations, roles and responsibilities for implementation of the CNS Integrated Safety Management program. Line management incorporates ISM guiding principles and core functions into process documents, work instructions, manuals, or other management-controlled documents that impact the safety of the sites, facilities or work tasks. Recognizing these principles and functions apply to all work, implementation is flexible and tailored to the complexity of the specific work and the severity of the associated hazards and environmental risks.

The CNS ISM infrastructure includes enterprise and site-level programs that prescribe the processes for business and program management, prioritization and allocation of resources, budget and cost management, identification of DOE or NNSA requirements and regulations, and specific ES&H management programs, procedures, and requirements (including waste management and pollution prevention) at the site, facility, and activity/task-levels.

ISM is applicable to all work performed at CNS sites. ISM is also applicable to CNS subcontractors to the extent that such requirements are incorporated into subcontractor contract documents.



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The contract between the Company and the subcontractor will contain specific contract scope, applicable worker safety and health requirements, and other terms and conditions.

The core elements of the Environmental Management System (EMS), based on International Organization for Standardization, ISO 14001, *Environmental Management Systems-Requirements with Guidance for Use*, have been integrated into the ISM program as described in the site's Environmental Management System requirements. To integrate requirements of ISO 14001, EMS objectives/targets for continual improvement are established. These continual improvement goals are reviewed and approved by Site management to ensure they are consistent with company commitments of the strategic plan and of the company commitment to environmental stewardship as reflected in ES&H policies.

This document incorporates applicable 10 CFR 851 requirements and establishes the mechanism for documenting the appropriate CNS implementation policies, procedures and work instructions.

CNS provides 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 and ensures that work is performed in accordance with applicable requirements of 10 CFR 851, including any compliance order issued by the Secretary pursuant to 10 CFR 851.4.

Section 7 contains a link to the web-based table that establishes the implementing documents for the ISM/WS&H Program requirements, including the applicable functional areas cited in 10 CFR 851.24 and 10 CFR 851, Appendix A. The table is intentionally established as a separately maintained and updated document. Updates to this table do not require notification and/or submittal to NPO for review or approval.

CNS's WS&H Program requirements apply to all operations including design, construction, operation, maintenance, decontamination and decommissioning, research and development, and environmental restoration activities at CNS sites. Activities and operations conducted by CNS personnel in leased and other off-site facilities will be in accordance with this WS&H program.

Unless otherwise specified in the contract document, CNS subcontractors working on-site will work under the WS&H program requirements established in this document.

### **5. Requirements**

48 CFR 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution* requires DOE contractors to establish an integrated safety management system. This regulation also requires contractors to follow ISM guiding principles and core functions, and to describe their approach for implementing and tailoring an ISM Program to their sites and activities.

Federal regulation 10 CFR 851, *Worker Safety and Health Program* requires contractors to provide a written worker safety and health program that describes how the contractor will integrate all applicable requirements of the Rule with other related site-specific worker protection activities and with their ISM program.

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### 6. Interfaces/Roles and Responsibilities

#### 6.1. ISM Program Overview - Guiding Principles and Core Functions

The basic structure of ISM (i.e., the Guiding Principles and Core Functions) is the overarching system used to manage the performance of CNS work. The Guiding Principles are the fundamental guidance for actions from the development of safety directives to work performance. The Core Functions define how CNS safety management functions are performed and provide structured methodology for the ISM Program.

#### 6.2. ISM Guiding Principles

GP 1 - Line Management Responsibility for Safety

*“Line management is responsible for the protection of the public, the workers, and the environment.”*

##### a. Contractor Assurance System (CAS)

The CAS, and its associated assessment elements, includes requirements, implementing documents, risks, controls, metrics, and validations that help facilitate maintenance and effectiveness of the programs. Associated performance metrics focus on essential parameters and are used to identify areas needing management attention if necessary. The performance metrics are transparent to NPO and viewable by all CNS employees. These metrics provide vital information on CNS site performance and operations, offering indicators of potential issues and a variety of other tools for effectively achieving contractor assurance.

The CAS helps to provide CNS customers, partners, employees, and the NNSA with assurance of mission success demonstrated by safety, quality assurance, security, project management, and operational business excellence achieved by:

- Well-defined requirement identification, adoption, and implementation processes.
- Graded and integrated risk management processes applied to site activities.
- Functional area improvements driven by appropriate performance metrics, self-assessments, and effective corrective actions.
- A culture that stresses safety, quality, security and performance excellence.
- Identifying and addressing program and performance deficiencies and opportunities for improvement.
- Providing the means and requirements to report deficiencies to the responsible managers and authorities.
- Sharing lessons learned across all aspects of operations.

Results are communicated to provide assurance that deficiencies are recognized and resolved in a timely manner and continuous improvement efforts are consistently focused on key processes.

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The CAS enables CNS to demonstrate work is conducted in compliance with contractual, corporate, and legal requirements. An effective CAS will result in a complementary and supportive relationship between NPO and CNS that allows both to focus limited resources on higher risk facilities and activities while retaining confidence that lower risk facilities and activities meet or exceed levels of satisfactory performance. It is supported by quantifiable data and is designed to be consistent with the hazards and the risks associated with the work performed.

b. **CNS Management Responsibility**

Line management is responsible for integrating ISM principles into all work and assuring active and effective communication between all levels of the workforce.

The CNS management team is committed to conducting work safely and securely and recognizes that line management responsibility, accountability, good management systems, and worker involvement are the key elements to an effective ISM. All levels of CNS management and each CNS worker are ultimately responsible for safety and security and for the protection of the public, the environment, and DOE assets (information and property).

CNS is committed to providing a safe and healthy workplace for employees and to protect the public and the environment. Use of ISM to consistently instill this value in diverse CNS work activities requires a tailored ISM program. ISM was designed to be implemented based on the hazards and risks associated with specific facilities and operations. While this document broadly establishes ISM and its implementation from a CNS enterprise-wide perspective, it specifically describes a system for implementation in all CNS facilities and organizations.

Implementation of ISM focuses on clearly establishing line management's responsibility and accountability for safety. This responsibility is accomplished through a well-defined organizational structure and by including specific roles and responsibilities of CNS managers in the procedures that implement ISM.

CNS Senior Management is responsible for providing policy and strategic planning support, ensuring that the work scope and budget process incorporate ISM principles, and oversee and guide implementation of ISM across the CNS enterprise.

CNS supervisors, organizational managers, and senior managers are held accountable for safety and health performance and the communication of safety and health rules for all employees. Safety responsibilities are understood and accepted by line managers as integral to mission accomplishment. CNS managers clearly understand their work activities and performance objectives, and how to safely conduct their work activities to accomplish their performance objectives.

CNS managers demonstrate their commitment to safety through their actions and behaviors, and support the organization in successfully implementing safety culture attributes by conducting inspections and surveillances of work areas and equipment. Work areas are inspected regularly using a risk-based approach to identify potentially

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hazardous conditions or work practices and to ensure expectations are being met regarding compliance with established requirements.

c. Risk-informed, Conservative Decision Making

CNS managers support and reinforce conservative decisions based on available information and risks. Risk is identified and decision making is systematic and rigorous through the utilization of ISM processes developed to support safe and reliable operations. Implementation of the ISM Core Functions with a questioning attitude, using processes at the site, facility and activity/task levels results in the work being performed safely.

d. Management Engagement and Time in Field

CNS managers and supervisors spend time in the workplace. Line managers practice visible leadership by placing eyes on the work, asking questions, coaching, mentoring, and reinforcing standards and positive behaviors. Deviations from expectations are addressed promptly.

Part of the CNS ES&H philosophy is that managers and supervisors are expected to assure that all workers reporting to them understand the expectations related to safety and health, the governing work controls, and the means by which workers can safely and successfully perform their assignments. This is accomplished through a variety of methods to include periodic safety meetings, daily pre-job briefings, and safety shares.

GP 2 - Clear Roles and Responsibilities

*“Clear and unambiguous lines of authority and responsibility for assuring safety are established and maintained at all organizational levels within CNS and its subcontractors.”*

a. Clear Expectations and Accountability

This principle is manifested in contract language, position descriptions, work authorization documents, technical procedures, administrative procedures, and training.

Personnel at all organizational levels are held accountable for standards and expectations. CNS has processes to recognize excellent performance through Special Recognition Awards as well as a formal discipline program to identify and correct less-than-adequate performance. Accountability considers intent and organizational factors that may contribute to undesirable outcomes. Responsibility for safety is well defined at all levels of the organization's workforce. Expectations for safety performance and accountability are clearly defined in writing. Individuals and organizations are held accountable in the context of a just culture.

b. Responsibility for Safety

Responsibility and authority for safety are well defined and clearly understood as an integral part of performing work. The line of authority and responsibility for safety is defined from CNS senior management to individual contributors. Roles, responsibilities,

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authorities, and accountabilities are clearly defined in writing and are understood. CNS safety programs reinforce individual commitment and responsibility for each individual's personal safety.

c. Policies and Procedures

CNS utilizes programs, processes, plans, manuals, procedures, and other associated work instructions that are derived from applicable federal, state, and local statutes and regulations, site policies, and industry standards that are used to conduct work. These various programs and processes are used daily in operating CNS sites and provide reasonable assurance of adequate protection for the worker, the public, and the environment.

GP 3 - Competence Commensurate with Responsibilities

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

a. Employee recruitment, selection, retention, and development.

CNS management takes steps to assure that the appropriate depth and breadth of technical talent is available, and that CNS has in place the means for periodically evaluating competencies. Competence includes training, experience, and fitness for duty.

CNS maintains a highly knowledgeable workforce to support a broad spectrum of operational and technical decisions. Technical and safety expertise is readily available. Outside expertise is employed when necessary. Professional and technical growth is supported to build organizational capability. Employees are required to improve knowledge, skills, and abilities by participating in recurrent and relevant training and are strongly encouraged to pursue educational opportunities.

For all work activities, CNS management is responsible for assuring that workers have the skills, knowledge, and abilities, including physical capabilities, to perform their work assignments. CNS Managers set an example for safety through their personal commitment to professional development and by direct involvement in training that reinforces expected employee behaviors.

The goal of the CNS Training Program is to assure that workers and subcontractors have the skills, knowledge, and abilities to perform work in a competent and safe manner. The CNS Training Program employs a Systematic Approach to Training which incorporates a cycle of analysis, design, development, implementation, and evaluation as integral elements of training programs. In turn, this systematic approach to training supports implementation of the ISM requirements. (Refer to Section 6.5.14, Training and Development Program)

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### GP 4 - Balanced Priorities

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

NPO interfaces with CNS to ensure continued excellence in mission execution. NPO and CNS senior managers collaborate to clearly define strategic ES&H expectations. Within the mission requirements of CNS, DOE or NNSA proposes the fiscal year work scope at the start of the new fiscal year budget process. Program Management reviews the proposed work scope based on plant capacity and DOE or NNSA's priorities and initiates the fiscal year budget process by providing draft budget planning guidance.

#### a. Integration of Safety and Business Processes

Determining budget and resource allocations necessary for safe operations is an integral component to annual planning and budget processes. By performing work analysis and budget formulation together, CNS more accurately estimates the funding required for safety analysis and the control of hazards associated with the task.

CNS Senior management provides policy and strategic direction, ensures the work scope and budget process incorporates ISM principles, and guides implementation of ISM across CNS sites.

The budget reconciliation process matches production, ES&H, and plant infrastructure requirements with available funding based on priorities. Unresolved items are elevated to the senior leadership team for resolution. The budget reconciliation process is an iterative process that culminates each fiscal year in agreement between CNS and DOE or NNSA authorizing the management and operating contractor to execute the agreed upon work scope. The current contract provides for work authorization directives, performance metrics, incentive fee criteria, and performance milestones for the budget execution year and contains requirements for the execution of DEAR Clause 48 CFR 970.5223-1, including flow down of these requirements to subcontractors. This process may be reiterated based on changes in mission, DOE or NNSA requirements, or newly identified work requirements.

CNS has established processes to track, manage, and control the budget. Following development of the budget, these processes provide the mechanism for evaluating CNS performance against the budget plan.

### GP 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 is established which, if properly implemented, will provide adequate assurance that the workers, the public, and the environment are protected from adverse consequences.”*

Safety standards and requirements are flowed into contractual agreements. Requirements flow-down from the Prime Contract to implementing management and control documents

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is through the CNS requirements management process. The level of the hazard dictates the level of formality used to analyze the hazards and to establish controls.

CNS design and construction workflow processes include steps to initiate applicable hazards evaluation processes to provide the analysis of designs of new facilities and modifications to existing facilities and equipment for potential workplace hazards.

CNS Design Project Teams and construction workflow processes include steps to incorporate controls from applicable hazards evaluations. Safety and health professionals verify that the designs comply with the safety requirements (i.e., Safety Basis documents; industrial hazards analyses; and other aspects of the CNS ES&H Program). The number and rigor of Design Reviews vary depending on project size and complexity.

These processes define the boundaries for safe and environmentally responsible operation of a work-activity. Based on the identified hazards, the level of formality and complexity of a work activity's safety analysis process is directly related to the level of hazardous inventories and operations present. As the hazards and risks associated with a work activity increase, the formality, documentation, and general level of effort increase. This concept is known as the "graded approach."

### **GP 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 associated hazards."*

Refer to Core Functions 2 and 3 in Section 6.3 for information regarding established CNS processes for identification and analysis of hazards, and determination of appropriate controls.

### **GP 7 - Operations Authorization**

*"The conditions and requirements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon."*

The level of formality for authorizing operations depends on the level of hazard and the program requirements. Before a work-activity commences, the process/work-activity owner and/or the Facility Manager or representative assures that the management chain is clearly identified and the safety and health controls are in place. New or revised work activities may not begin until they have been authorized and documented as having all applicable hazards evaluations completed.

Operations authorization is maintained using the change control process to maintain the safety basis authorized by DOE. Refer to Core Functions 2, 3, and 4 in Section 6.3 for additional information related to operational requirements and work authorization.

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### 6.3. ISM Core Functions

ISM is implemented through the ISM Core Function framework, which assures work processes at the enterprise, site, facility, and activity/task levels, methodically and formally assess hazards and implement appropriate controls to mitigate any potential negative consequences.

CF-1 - Define the Scope of the Work

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

#### a. CNS Mechanisms

The scope of work for CNS is established at the corporate level by the management and operating contract between CNS and NNSA (DE-NA0001942). The Contract defines CNS as an entity and provides the operating boundaries and requirements of the work CNS performs for DOE or NNSA. Each fiscal year, budget targets are established. CNS reviews the proposed work and initiates the budget process. DOE or NNSA expectations, CNS capabilities, safety priorities and available resources are explicitly considered in defining the scope of work to be performed. Activities are prioritized to assure that resources are most effectively applied while safety is being maintained.

ISM relies on a well-defined and understood scope of work to establish appropriate levels of resources for performing work safely and securely. Enterprise and site-level mechanisms exist for planning, estimating, and budgeting for the required resources based on DOE or NNSA mission requirements. From these processes, facility-level work requirements are established.

Performance objectives, measures, and commitments are established and agreed to between NPO and CNS annually and are consistent with mission, and budget guidance. The Performance Evaluation Measurement Plan and specific work scope performance objectives are established by NPO. A baseline change process is in place to maintain the performance and budget plans. The purpose of the objectives, measures and commitments is to drive continuous improvement in performance and ISM system effectiveness.

The budgeting process incorporates the agreed upon production and ES&H priorities for CNS. Within this process, personnel requirements are projected through integration in production work scopes. This includes not only the skilled labor and supervisory requirements, but also the technical personnel needed to support operations.

#### b. Define Scope of Work

Once the work scope is agreed upon contractually, the operating organizations are responsible for carrying out the mission (1) while fulfilling the requirements of all applicable laws, regulations, DOE or NNSA directives, and standard industrial practices, and (2) within the approved safety basis, environmental permits, and security plans for the facility. An important part of the work planning process is a clear definition of the scope of the work to be performed.



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c. Operational Work

Operational work is defined as work performed by a production or operations organization. The scope of operational work includes activities such as assembly and disassembly of weapons components, manufacturing of components, and weapons quality assurance (QA) and evaluation activities. Also included in operational work are activities such as operational checks, rounds, and surveillances.

The scope of operational work authorized for each nuclear facility is defined via an applicable readiness assessment or review and falls within each facility's approved safety basis, security plan, and environmental permits.

Each facility, process, and activity change is evaluated against the safety basis to ensure that work can be performed within the approved safety basis.

d. Maintenance Work

A comprehensive maintenance program preserves and restores facility systems, equipment and components to assure structures, systems and components important to safe and reliable operations are capable of fulfilling their design and safety functions. The work control system is designed to assure that maintenance activities are performed safely, correctly and in a timely manner; that activities are properly verified; and that adequate facilities, equipment, tools, parts and materials are available when needed.

Maintenance work is performed in a support role. The maintenance provider works closely with the line managers and other support organizations to plan, schedule, and perform maintenance work.

For maintenance activities, the scope of work to be performed is initially identified by the customer. Maintenance work is planned, scheduled, executed and closed in accordance with site-specific procedures.

e. Project Work

When a present or future need or requirement is identified by an organization, the organization shall determine whether the mechanism required to meet the need is a project. Projects are unique efforts that support 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 or mission. Projects include planning and execution of construction, renovation, modification, and large capital equipment.

For demolition work the process includes identifying the scope of work and hazards and risks associated with the work; identifying design mitigating actions; producing, and obtaining approval of, design documents and work instructions; and issuing a demolition plan, which defines the demolition and supporting activities and is required for gaining approval to demolish a facility.

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f. Protective Force Work

CNS has established programs and processes to define the configuration management processes and mechanisms for security employees to use in effectively planning, documenting, and performing work in an integrated, rigorous, and disciplined manner in accordance with ISM, including firearm safety requirements.

g. Construction Work (Direct-Hire or Subcontracted)

For plant modifications and most project work, the Construction organization is responsible for planning, controlling, executing, testing, and turning over the completed work. Engineering defines the design requirements and develops drawings and specifications. Construction develops Certified for Construction packages, and the safety and security aspects of the work are defined for the actual work activities. Work is then performed by Construction direct-hire workforces and/or Construction subcontractors. Construction may be performed utilizing commercial control specifications when the scope of work is limited by the following criteria:

- Non-nuclear facility construction
- Non-radiological work only, with Company Radcon support to maintain Seller work as non-radiological
- No HAZWOPER work to be performed by Seller (legacy hazardous material discovery to be mitigated by CNS should unexpected conditions be encountered).
- Characterization data demonstrates construction area is not contaminated (radiological or chemical)
- Waste disposal shall be at DOE owned and operated landfills in accordance with CNS requirements however, selected materials maybe recycled with CNS approval.
- Construction boundaries can be clearly established to provide adequate separation from CNS active operations.

Commercial control specifications may be limited to standards, and federal, state and local laws applicable to specific scope of work for non-residential building construction and specific CNS procedures included in contractor specifications.

h. Support and Service Work

Support and service work activities include tasks performed by support-type organizations not addressed in the previous sections. The scope of support and service work includes hands-on work performed by organizations such as ES&H, Engineering, including technology research and development activities. Although these support and services work tasks are not controlled specifically through existing site-level work control processes or procedures, evaluation of task and facility-related hazards is necessary to ensure appropriate controls are established.

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Organizations performing these types of work tasks are required to perform work utilizing the existing processes and procedures described in this document (i.e., technical procedures, job hazard analysis (JHA/What-If) process), or they may establish and implement organization-level processes and procedures for defining work scope, analyzing hazards and establishing controls. Implementation of hazard controls may be through employee training and qualification, pre-work briefing by supervisors or supervisor of the organization being supported, or documented work plans.

The following elements are required to be implemented by all organizations performing hands-on support and services work activities:

- Define the work control process in procedures or work plans directing work activities in accordance with ISM Core Functions.
- Establish training qualification requirements for Support Services personnel.
- Incorporate work authorization from the supervisor and/or facility/operations manager.
- Address the analysis of hazards associated with the work task and established controls.
- Identify, evaluate and control hazards associated with the facility or work location.

i. Subcontract Work

Subcontract management uses a graded approach and will vary from subcontract to subcontract. Factors influencing the degree of subcontract management include the nature and complexity of the work, the type of subcontract, and the experience of the personnel involved. Subcontract management involves not only the Subcontract Administrator/Procurement Representative (SA/PR), but also the Subcontract Technical Representative (STR), who plays a critical role in the outcome of the subcontract. The STR monitors technical performance and reports any potential or actual problems to the SA/PR.

CF-2 - Identify and Analyze the Hazards

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

The CNS ISM program includes a robust WS&H program which identifies how workplace hazards are recognized, abated, controlled, or otherwise mitigated to reasonably assure workers are adequately protected from identified hazards.

The identification and analysis of hazards is part of the work planning process. The goal of this process is to assure that the hazards associated with work activities and facility operations are clearly understood and appropriately managed. Existing and potential workplace hazards are identified on a facility-by-facility basis and based on the types of operations and work activities being performed.

In addition, site level procedures establish the process to identify potential environmental hazards associated with CNS site operations and activities.

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CNS fully recognizes that it is important to highlight and keep clearly in focus hazards that would result in the largest consequence. However, CNS recognizes the importance of being aware of, and controlling, hazards with a higher likelihood of occurrence (such as industrial safety hazards) which could injure workers and undermine the CNS safety posture. Industrial hazards affect every CNS operation. The hazard assessment and hazard abatement processes must be integrated across all CNS operations to properly address all hazards.

Hazards associated with CNS operations include, but are not limited to: Nuclear/Nuclear Explosive Operations; Non-Nuclear Hazardous Operations; Explosive hazards; Facility hazards; and Physical hazards associated with routine facility operations, maintenance, and construction activities. This WS&H program complements DOE nuclear safety and explosives requirements by assuring that people who implement worker protection, nuclear safety, and explosives safety requirements coordinate and cooperate in instances where requirements overlap. These requirements are integrated and applied to guard against unintended results and provide reasonable assurance of adequate worker protection.

a. Nuclear/Nuclear Explosive Operations:

Hazardous nuclear operations under 10 CFR 830 are addressed in CNS site specific procedures:

- The Documented Safety Analysis (DSA) process applies to all CNS projects, programs, and activities that specifically require a safety basis.
- Safety Basis documents contain the results of the hazard identification/evaluation, accident analyses, and control selection for site, facility and nuclear explosive programs.
- Safety Basis documents are approved by NPO.

b. Non-Nuclear Hazardous Operations

At Pantex, high, moderate, and low-level non-nuclear hazardous operations are identified in the facility hazard classification process. The PHA is a thorough review and analysis to determine the hazards of the explosives and highly hazardous chemical operations associated with a covered process and facility. The PHA identifies controls to prevent or mitigate potential accidents and consequences of a catastrophic release affecting the worker, as well as facility and equipment protection. Employees from all levels are involved in PHA development. The PHA approach examines the administrative and engineered controls that are major contributors to process and facility safety with a focus toward prevention and mitigation of potential accidents.

At Y-12, activities are also subject to hazardous material identification and facility classification processes. Facilities exceeding specified thresholds are required to develop, maintain, and operate within controls established through defined safety analysis processes. Remaining facilities must constrain operations within material limits established during the hazardous material identification process.

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#### c. Explosive Hazards

The Explosives Safety Program is established to provide a safe workplace for CNS employees, contractors, and visitors regarding operations involving the development, testing, handling, and processing of explosives or assemblies containing explosives. The CNS Explosives Safety Program Strategy Document, E-SD-2052, establishes and maintains site-specific Explosives Safety Programs (ESPs) at Pantex and Y-12 in accordance with the requirements of DOE-STD-1212. The Explosives Safety Program at Pantex provides a safe workplace for CNS personnel associated with the entire spectrum of explosives development, manufacturing, handling, storing, transporting, processing, and testing. The Pantex ESP utilizes MNL-240176 as a direct correlation of DOE-STD-1212 requirements and approved site-specific Waivers. The requirements of MNL-240176 are flowed down through numerous site-level process documents, work instructions, and technical procedures. Compliance is verified through start-up safety reviews and document change control processes, as well as independent and management assessments. The Explosives Safety Program at Y-12 provides a safe workplace for CNS personnel associated with managing security ammunition (training and response) and limited activities with explosive components (assembly/disassembly, handling, and storage). The Y-12 ESP utilizes Y14-017PD to implement the applicable requirements of DOE-STD-1212. In addition, this document integrates explosives safety responsibilities and outlines cognizant explosives safety support for operations.

#### d. Facility Hazards

The Facility Safety Program applies primarily to operations involving significant nuclear and/or chemical hazards and is focused on the prevention and mitigation of accidents which have potentially significant consequences. To meet the primary focus of the program, all CNS/Site activities are subject to hazardous material identification and facility classification processes. CNS uses the facility hazard classification process to determine the level of formality required to address the hazards associated with operations. Facilities exceeding specified nuclear material/chemical thresholds are required to develop, maintain, and operate within controls established through defined safety analysis processes. Remaining facilities must conduct operations within material limits established during the hazardous material identification process.

Facilities are screened to determine the facility classification based on the facility's inventory of nuclear material, chemical, and other classification criteria. The facility safety program, including roles and responsibilities, are defined in site specific procedures. In addition, site level procedures establish the guidance and criteria for determining facility classifications, as well as processes for analysis of hazards, identification of controls, and preparation of safety basis documents.

To ensure that work scope is performed within the facility's safety basis, the safety envelope of the facility must be clearly defined, understood, and maintained by line management of the facility. The requirements and commitments to implement programs, such as configuration management, maintenance, selection and qualification

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of operating personnel, and procedures development and implementation are necessary to maintain the safety envelope.

Depending on the facility classification (based on the operations and the types and inventories of materials), a formal safety analysis may be performed to establish the safety basis of the facility. A DSA—typically a Safety Analysis Report—and the technical safety requirements (TSR) are required in accordance with 10 CFR 830, Subpart B, for nuclear facilities.

e. **Physical Hazards**

Physical hazards associated with routine facility operations, maintenance, security, and construction activities, including environmental hazards, are covered by CNS Safety Programs. A hazard analysis (HA) is one of many accident prevention tools, and is used to review job methods by identifying hazards associated with the layout of site facilities and the design and operation of machinery, equipment, tools, workstations, tasks or processes. HAs are performed by supervisors and involved employees working together. The ES&H subject matter experts (SME) provide assistance as needed. The supervisor discusses the job hazards and hazard control methods with all personnel involved in that job after HAs are completed. Employees are given the opportunity to provide comments on the HA if they think hazards have not been appropriately addressed. Additional tools include, but are not limited to, safety and management walk-throughs, engineering instructions and reviews, work-packages, project plans, safety basis reviews, etc.

HAs are updated periodically to assure that any new hazards that have been introduced since the last evaluation of the activity are addressed. The principle elements of a HA include: 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; during the work activity hazard evaluation, the identified hazards and the applicable controls required to manage each identified hazard are documented; and development of procedures and work control documents incorporating identified controls.

f. **Assessing and Evaluating Operations, Procedures, and Facilities**

Hazard evaluation processes include regularly scheduled evaluations of operations, procedures, and facilities to identify workplace hazards. Significant focus is on individual work activities because these activities can change frequently and present different hazards. The scheduled evaluations 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.

g. **Subcontractor Work Activities**

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CNS sites have established subcontractor ES&H processes which define the requirements and responsibilities to manage ES&H for all subcontracted work at CNS, leased or managed properties. These processes delineate clear roles and the responsibilities for establishing appropriate ES&H controls for subcontractors. For additional information refer to Section 6.5.15, subcontract strategy.

### CF-3 Develop and Implement Hazard Controls

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

#### a. Hierarchy of Controls:

In the establishment of safety controls, CNS uses the following hazard control method hierarchy: (10 CFR 851.22 (b))

- Elimination or substitution.
- Engineering controls where feasible and appropriate to include:
  - Enclosing the hazard.
  - Locating hazardous operations or equipment in remote or unoccupied areas.
  - Establishing physical barriers and guards.
  - Using local exhaust ventilation.
- Work practices and administrative controls that limit worker exposures to 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 early morning or evening to reduce potential for heat stress.
  - Training employees in methods of reducing exposure.
- Personal Protective Equipment (PPE), an acceptable 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.

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- o During maintenance and other non-routine activities where other controls are not feasible.

When elimination or substitution of the hazard does not reduce the associated risk to acceptable levels, they may be supplemented with engineering controls. Engineered controls are used when possible to control hazards and mitigate potential accidents. Where engineering controls do not reduce the associated risk to acceptable levels, they may be supplemented with work practices and administrative controls. Where necessary, these controls may be further supplemented with the use of appropriate PPE. PPE as a control measure is not considered until all other methods of control have been explored. PPE is used when engineered barriers and administrative controls are either unavailable or insufficient to mitigate the hazards.

Worker involvement in procedure development and verification through tabletop reviews and system walk-downs is essential to ensure procedures are usable, technically correct, and contain the appropriate requirements. As part of the HA process, workers participate in HA teams to identify hazards for the defined work. Using experienced personnel who have an understanding of the engineered and administrative controls and the PPE requirements is key to handling abnormal situations should these controls fail.

Using information available from process-specific hazard analyses, and other controls specified by facility or site level requirements, line managers work with facility managers to establish the controls necessary for performing the work safely. The line manager identifies the facility(s) where work will be performed. Line and program managers are responsible for assuring ES&H hazards associated with the proposed work are within the safety basis. The site work control processes ensure that planned work or changing scope of work falls within the facility's safety basis, environmental permits, and security plans.

For additional guidance regarding environmental hazards and controls refer to the site-specific EMS.

### a. Establishing and Maintaining the Safety Envelope

For nuclear facilities, the implementation of approved safety basis documents ensures credited engineered barriers, operating parameters, and administrative controls are maintained within the facility's safety basis. Safety basis requirements are addressed via implementing procedures that provide direction to ensure that CNS facilities are operated within their design basis and are used to support safe operations of those facilities.

Based on the safety analysis, DSAs document facility hazards and identify necessary controls. TSRs establish the highest level controls within the facility. These safety basis controls, which are implemented by procedures, along with formal work control processes used to plan and execute operational, maintenance, construction, and project activities to ensure controls are in place for other hazards, define the operational safety envelope.



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Revisions to a facility's safety basis documentation may be required before implementing changes to the facility, inventory, engineered or administrative controls if the safety basis would no longer be appropriate for existing or proposed future hazards. Application of the unreviewed safety question (USQ) process is required to evaluate a planned change in facilities, equipment, or work scope to determine if the change is outside the approved DSA and may require NPO approval.

b. Documented Safety Analysis

For nuclear facilities, ISM relies on clear identification of nuclear hazards and controls so proposed changes can be evaluated to ensure they remain within the approved safety envelope. This identification is accomplished through safety analysis that defines the controls necessary to operate the facility safely and securely through use of formal work control processes that implement controls to address hazards or risks specific to the work being performed. The results of this safety analysis is documented in a DSA.

Safety Management programs are also documented by the safety analysis process.

Examples of Safety Management Programs are:

- Configuration Management
- Nuclear Criticality Safety
- Radiation Protection
- Hazardous Material Protection
- Initial Testing, In-Service Surveillance, and Maintenance
- Conduct of Operations
- Fire Protection
- Quality Assurance
- Emergency Management
- USQ Process
- Training and Qualification

c. Nuclear Operations

Hazardous nuclear operations are governed by 10 CFR 830 and are addressed in site-specific documents. The DSA process applies to all CNS projects, programs, and activities that specifically require a safety basis (e.g., hazard Category 2 nuclear facilities, nuclear materials operations, and nuclear explosive operations).

Documented Safety Analyses contain the results of the hazard identification/evaluation and control selection at the site and facility level and by

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the nuclear explosive program. HA results and the controls, both engineered and administrative, derived from those analyses are documented and approved by NPO.

d. Non-Nuclear Hazardous Operations

For Pantex operations a PHA records the analysis of the hazards and controls related to an explosives or highly hazardous chemical operation. A PHA Team led by a PHA Analyst performs analysis of each required process every five years. The PHA Team identifies the hazards associated with a process and then identifies the controls, both engineered and administrative, used to prevent or mitigate potential explosive responses. Changes to PHA-covered operations are managed through the Pantex Hazards and Controls Evaluation Process.

At Y-12, a graded approach is applied to non-nuclear hazardous operations. All Y-12 activities are subject to hazardous material identification, job hazards analysis processes, and facility classification processes. These processes have built in threshold criteria that determine the appropriate level of analyses for the respective hazards.

CF-4 - Perform Work within Controls

*“Readiness is confirmed and work is performed safely.”*

It is the policy of CNS to startup new operations or restart operations previously shutdown in a reliable, secure, and cost effective manner.

The Readiness Program applies to CNS organizations, employees, sub-contractors and other support personnel that perform startup or restart activities. Each line organization is responsible for meeting operational readiness expectations for these activities.

CNS management uses facility procedures to ensure that work is performed within the operating boundary of the facility and the potential for accidents and emergency situations is identified and analyzed.

For projects that introduce new hazards into the facility, the line manager involves facility management, technical managers, and ES&H staff to assist in identifying any special considerations that might affect the safety of conducting the work in the given facility. When new controls are necessary to safely execute a project, they are identified and included in project cost projections. These new controls may require modifying the safety basis.

Work on individual project tasks involving identified hazards/risks is authorized when: 1) NPO approves the expenditure of funds and 2) the Startup/Restart Authorization Authority (SAA) authorizes the conduct of work. Specific readiness program startup and restart requirements apply to initial startup, modification or restart of any nuclear, nuclear explosive or Pantex hazardous non-nuclear facility or operation. The process for activity startup and restart includes:

- Certification of readiness by the appropriate organizational manager.

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- Conduct of independent Readiness Reviews (Operational Readiness Reviews and Readiness Assessments).

Readiness preparation and review applies to all organizations and to all nuclear, nuclear explosive and Pantex hazardous non-nuclear activities for which CNS has environment, safety, and health responsibility.

The project/facility manager assigned responsibility for management of the startup/restart prepares the activity for safe operations. At Pantex, as a part of the readiness preparation process, a Readiness Verification Program review of the elements of the activity is conducted to confirm the project has achieved readiness. When the readiness verification is complete, the team leader recommends to the responsible organizational manager to declare readiness for the Contractor Readiness Review.

At Y-12, readiness is certified using the Readiness Certification Assurance Process. The functional requirements owner certifies that CNS site expectations have been met using an affirmation process, and Readiness Assurance personnel validate the affirmations that are reviewed by a board of senior managers when applicable. The Readiness Leader, the production manager, and the responsible operations manager certify that the project/process is ready for Contractor Readiness Review.

Then trained and qualified independent Readiness Assurance organization personnel conduct a Readiness Review to confirm that task, operation, activity or facility can be started or restarted safely.

If the SAA as specified in the Startup Notification Report is NPO, a subsequent readiness review is conducted by NPO. At Pantex, for nuclear explosive work, an approved Nuclear Explosive Safety Study and Design Agency approval (Engineering Release) are also required.

Authority to begin work is granted when the SAA grants startup authorization.

Work is conducted in accordance with the Site Conduct of Operations Manuals. These manuals establish the requirements necessary to control operations in a disciplined manner to ensure work is conducted according to procedures and work packages with the appropriate level of rigor and formality. These manuals establish clear roles and responsibilities for the control of work activities, and define the interfaces between operations and plant system owners.

Work permits are used as management controls for performing work safely in hazardous environments. Permits are predefined to control work in radiological areas, nuclear and explosive areas, confined spaces, excavations, hot work, and other work activities as required by site-level ES&H programs and/or procedures.

After the scope of work is well understood, hazards and risks have been identified and analyzed, and controls and measures established to prevent or mitigate the hazards and risks, Site Conduct of Operations Manuals are used to ensure work is authorized and established controls remain in place throughout work execution. The line manager is responsible to ensure that workers are properly trained, current procedures are available,

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orders are posted and executed, and technical support is available as needed to ensure the safe and secure conduct of work.

Work is performed in a disciplined manner with strict adherence to procedures, work planning documents and the facility security plan. Line supervision is responsible to ensure controls remain in place during work execution.

When abnormal conditions arise, or when there is a perceived threat to the safety and security of the worker, the public, or to the protection of the environment and DOE assets, workers are trained to execute stop/pause/suspend work authority. For additional information refer to Section 6.5.5, Stop Work.

CF-5 - Provide Feedback and Continuous Improvement

*“Feedback information on the adequacy of controls is gathered; opportunities for improving the definition and planning of work are identified and implemented.”*

Refer to Section 6.6, Feedback and Improvement for information regarding established feedback and improvement mechanisms.

### 6.4. Integration of Core Functions at Each Level of Work (Integrated Work Management)

The Core Functions define how CNS safety management functions are performed and provide structured methodology for the ISM Program.)

The ISM Core Functions apply at the enterprise, site, facility, and activity/task levels. Each level has defined processes that integrate with the other levels. This assures safety and provides feedback about the effectiveness of the overall ISM Program. The levels are as follows:

- **The Enterprise and Site Level** represents the management and operation of CNS sites as authorized by the Prime Contract.
- **Facility Level** represents the work of providing and maintaining facilities and equipment to support CNS missions and associated processes.
- **Activity/Task Level** represents work/activities on individual mission projects.

#### 6.4.1 Enterprise and Site Level

CNS Management is responsible for providing policy and strategic direction, ensuring that the work scope and budget process incorporates ISM principles, and overseeing and guiding implementation of the ISM program across CNS sites and ensuring consistent application of ISM principles across the enterprise through the implementation of enterprise and site level programs, procedures, and work instructions.

Although primary responsibility for ISM implementation lies with line management at the facility and activity/task levels where work is performed, worker involvement

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and CNS management support at the enterprise and site level are necessary to ensure successful implementation.

### **6.4.2 Facility Level**

Procedures and standards, including safety basis documents, define the scope of work at the facility level, including identification of facility controls and personnel roles and responsibilities for maintaining the integrity of the facility-operating boundary.

These documents are used to assure facility operating boundaries fall within the boundaries defined by the operating contract and its safety basis.

The facility safety basis is that set of documents required by 10 CFR 830, Subpart B that are approved by the NPO, relating to the control of hazards at a facility and relied upon to conclude that activities at a facility can be conducted safely.

At the facility level, implementation of ISM provides the managers of line operations with the technical resources and processes to fulfill their responsibilities for managing the safety and security envelopes. Work planning is accomplished using a multi-disciplined team approach so that potential hazards and risks are identified and analyzed. Integrated controls and measures are put in place to protect the worker, the public, the environment, and DOE assets (information and property). Assessment and feedback processes that are vital to the continuous monitoring and improvement of ISM are used to assess implementation.

### **6.4.3 Activity/Task Level**

At the activity/task level, successful implementation of the ISM program relies on the knowledge, skills, and safety and security commitment of the first line supervisors and workers. A disciplined approach to work execution, formalized by Conduct of Operations requirements, using formal work procedures and qualified workers is fundamental to ISM. Worker participation provides the necessary floor-level perspective to ensure that work can be executed safely and securely and that opportunities for improving safety, security, and operational efficiency are identified and implemented throughout the work process.

At the individual activity/task level, activities range from work activities with no specificity beyond definition of work scope (e.g., area walk-downs or inspections) to operational activities that are described in technical procedures which specify the step-by-step detailed actions that are performed during work execution.

Work is planned using a graded approach to recognize the hazards and complexity of the work.

For each task being performed, work control processes ensure that:

- The scope of work is defined.

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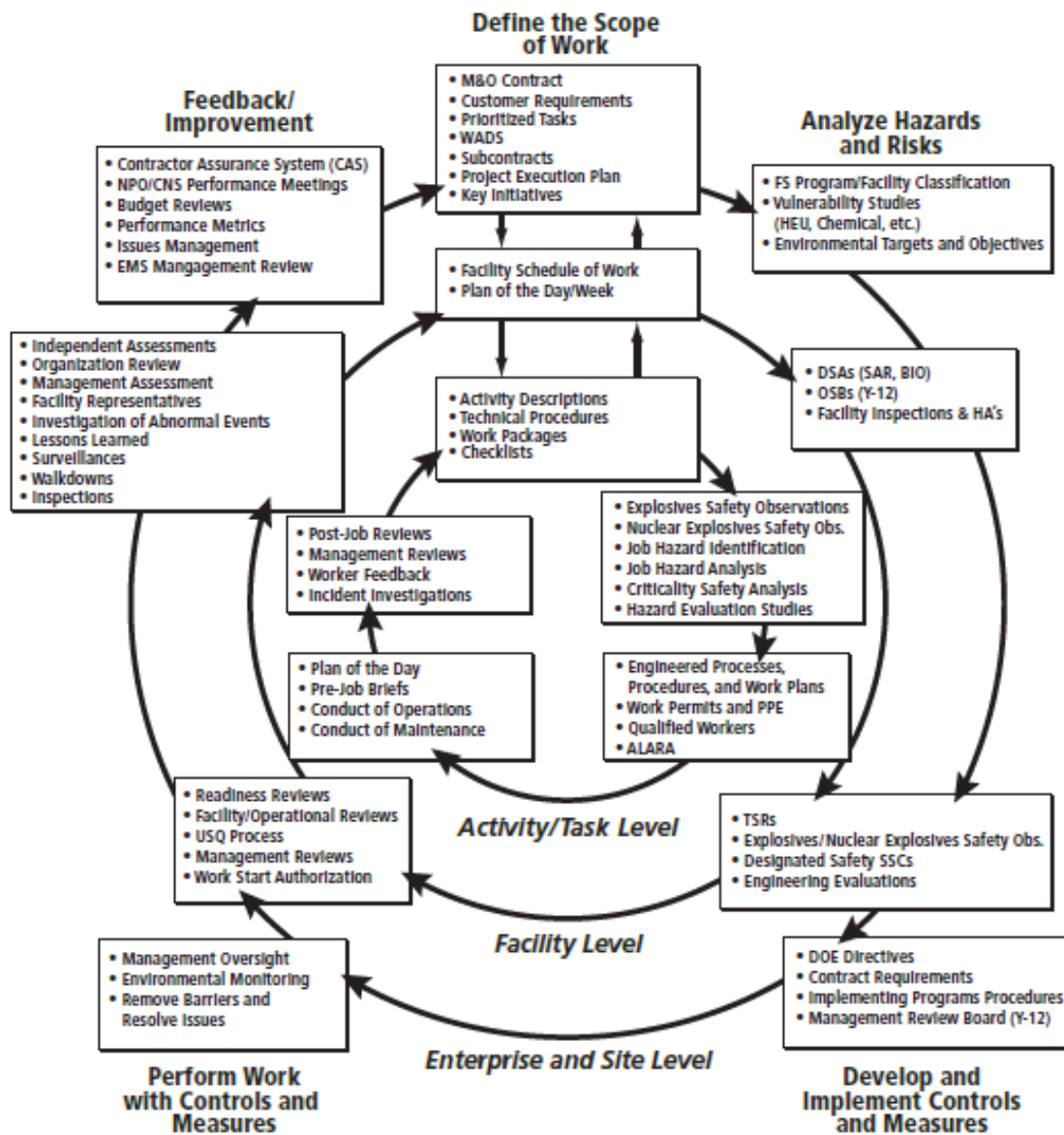
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- The hazards, threats, and risks associated with the task are identified and analyzed.
- Controls and measures are identified, integrated, and implemented before the work is performed.
- Work is performed within the identified controls.
- Feedback mechanisms are used to evaluate process improvements.

Analysis of potential hazards and risks associated with a task is the responsibility of line management, who will involve the appropriate technical expertise and SMEs, as needed. Line management is responsible at the task level to ensure all activities in the facility are authorized within the safety envelope and security plan. Workers are involved in the analysis of hazards and risks and the identification of controls. Pre-job briefs are conducted and the work procedures or instructions, results of HA, and the required permits and controls necessary to the job are reviewed with the worker. Work is performed by personnel who are trained and qualified to perform their assigned task.

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Figure 2 - Integration of ISM Core Functions



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### **6.5. Implementation of 10 CFR 851 Requirements**

#### **6.5.1 Coordination with Other DOE Contractors**

**NOTE:** DOE or NNSA contractors and their subcontractors must have a DOE approved WS&H program, when applicable. Upon request, CNS may: 1) provide applicable site ES&H requirements, 2) review their ES&H plan for the work activity (though not approving or rejecting their plan) and 3) authorize work when appropriate.

The identity of other contractors to DOE or NNSA is subject to change at any time. CNS will coordinate with NPO to ensure that information is obtained regarding other contractors for coordination purposes. Once CNS is informed of additional contractors to whom 10 CFR 851 applies, a coordination agreement may be established when appropriate.

Multiple contractors at a covered workplace are required to coordinate with each other to ensure that there are clear roles, responsibilities and procedures to ensure the safety and health of workers at multi-contractor workplaces. Other DOE prime contractors perform work at CNS sites but are not necessarily covered by CNS's WS&H program, depending on the scope of work performed. When appropriate, CNS will enter into coordination agreements with other prime contractors on site in accordance with 10 CFR 851. These coordination agreements will define roles and responsibilities and stop/pause/suspend work authority to ensure the safety and health of workers.

The coordination agreements will require that each contractor be responsible for the safety and health of its employees and they will follow their company's worker safety and health program and implementing procedures, unless otherwise specified. Each contractor has the responsibility to inform other contractors and their employees of hazards that they may encounter in facilities operated by the respective contractor. Finally, the coordination agreements will reinforce that every employee at a covered workplace has stop work authority regardless of the contractor performing the work.

#### **6.5.2 Closure Facilities**

Within 90 days after identification, CNS will submit to NPO a list of closure facility hazards that cannot be fully abated or controlled in accordance with processes established by this approved program. The submittal will include the proposed hazard controls for review and acceptance by NPO.

#### **6.5.3 Bargaining Unit Organizations**

Bargaining Unit employees at Y-12 are represented by four primary labor organizations, including the ATLC, the KBCTC, the USW, and the IGUA.



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Bargaining Unit employees at Pantex are represented by three primary labor organizations, including the MTC, the PGU and the West Texas Building Trades.

In accordance with 10 CFR 851.11(d), Union Officers and designated representatives will be notified in a timely manner of the development, implementation, updates and revisions of the WS&H program. Notification will be made by e-mail or other correspondence when the procedure is revised or updated. In addition, in accordance with 10 CFR 851.11(b)(3), CNS makes available the approved WS&H program to affected workers or their designated representatives, primarily via CNS OneSource (webpage) or the CNS public website.

Labor union leaders and representatives work closely with management to encourage teamwork and promote employee involvement seeking to continuously improve worker safety and health at CNS sites.

Unions have established Union Health and Safety Representatives. These Representatives monitor the employee workplace environment and assure appropriate corrective action is taken when required. They also serve as another conduit between employees and management for the expression of safety and health concerns. These representatives actively support craft in identifying and resolving health and safety concerns and issues to encourage craft involvement and reporting.

### **6.5.4 Worker Involvement**

CNS has established processes to ensure involvement of workers in the development and implementation of the WS&H program and identification and control of hazards. Site Manager Safety Councils, including Site Union representatives, at each site meet monthly to discuss safety and health performance trends and issues and establish recommendations for safety and health performance improvement initiatives.

In addition, routine HA activities are accomplished through the ISM process, which applies to all jobs, processes, and facilities. Implementation of the ISM Core Functions and Guiding Principles throughout CNS programs have the natural effect of triggering the necessary interaction between programs and personnel to assure work processes are adequately defined, analyzed, controlled, and ultimately safe to conduct. Workers are actively involved in identification, planning, and improvement of work and work practices.

### **6.5.5 Stop Work Authority**

All CNS employees and subcontractors have stop/pause/suspend work authority and stop/pause/suspend work responsibility if they observe any condition that adversely impacts safety, security or quality. Employees and subcontractors are encouraged and expected to exercise stop/pause/suspend work authority in a

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responsible manner when conditions warrant without fear of punishment or retaliation.

Employees and subcontractors have the authority to stop any operation or activity that has actual or potential unsafe working conditions, actual or potential violation of standards or regulations, causes or has potential to cause environmental damage, or produces a deficiency in the quality of production. CNS site level procedures establish the stop work process.

### **6.5.6 Worker Rights and Responsibilities**

Workers have the right to work in an environment free from recognized hazards likely to cause serious injury or death. CNS believes that accidents are preventable through attention to hazards and appropriate action by each individual and the responsible organization. As such, it is paramount that workers be informed of their rights relative to 10 CFR 851 and associated OSHA standards.

CNS posts the DOE-designed Worker Protection Posters in various work spaces to make worker rights, as delineated in 10 CFR 851, accessible to all workers. Worker Safety and Health information is available on internal webpages.

CNS informs workers of their rights and responsibilities by various means including training, briefings, other safety documents, and the Worker Protection for DOE Contractor Employees poster.

CNS employees are required to comply with the requirements of 10 CFR 851 as well as the CNS ISM/WS&H Program. In addition, it is the right and responsibility of CNS employees to actively participate in the planning of work activities, as appropriate, to ensure their knowledge and experience improves work performance, and to stop or suspend/pause activities.

Every CNS employee is directly responsible for assuring his or her own safety. As such, worker involvement is an essential part of the ISM/WS&H Program.

### **6.5.7 Participating on Official Time**

CNS employees have the right to participate in activities related to the CNS ISM/WS&H Program on official time, including exercising all worker rights listed in this document.

### **6.5.8 Access to Information**

CNS ensures that safety and health related documents containing the information needed to perform work safely are available to all workers who need access to the information.

The supervisor is responsible for assuring that each worker involved in a work activity has immediate access to the work activity's applicable procedures and governing documents.

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Workers have the right to have access to the following information:

- DOE safety and health publications.
- Documents implementing the CNS ISM/WS&H Program.
- Safety and health standards, controls, and procedures applicable to CNS.
- Worker Protection poster for DOE Contractor Employees that informs workers of their rights and responsibilities.
- Results of workers' own exposure monitoring.
- Results of inspections and accident investigations.
- Limited information on any recordkeeping log (OSHA Form 300) with access subject to Freedom of Information Act requirements and restrictions.
- DOE Form 5484.3 (DOE equivalent of OSHA Form 301) that lists a worker as injured or ill.

### **6.5.9 Observation and Notification of Monitoring Results**

Workers have the right to observe monitoring of hazardous agents in the workplace.

Workers also have the right to be notified when monitoring results indicate they have been over exposed to hazardous materials.

### **6.5.10 Accompany Inspections**

Workers have the right to a representative authorized by workers to accompany a DOE/NPO Director or authorized representative during the physical inspection of the workplace for the purpose of aiding the inspection. When no authorized worker representative is available, the DOE/NPO Director or authorized representative must consult, as appropriate, with workers on matters of worker safety and health.

### **6.5.11 Raising/Reporting/Resolving Worker Concerns**

Employees, subcontractors, and visitors are encouraged to raise concerns without fear of retaliation or reprisal. Multiple processes are available for personnel to raise and submit concerns regarding safety, health or environmental protection; quality; differing professional opinions; ethics; discrimination; harassment; labor; and other various topics. CNS management is required to promptly and effectively respond to workers who raise concerns. If necessary, workers may pursue further action with DOE or NNSA.

In addition, CNS has established procedures for workers to report job-related injuries, illnesses, incidents, and hazards, and to make recommendations about appropriate ways to control the hazards.

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### **6.5.12 Refusal to Work**

CNS sites have established processes to ensure the worker's right to decline to perform an assigned task because of a reasonable belief that the task poses an imminent risk of serious physical harm or death, coupled with a reasonable belief that there is insufficient time to seek effective redress through normal hazard reporting and abatement procedures.

### **6.5.13 Functional Areas**

CNS has an established approach to ensure that safety and health programs at the Enterprise, Site or Organization level incorporate the functional areas required by 10 CFR 851.24, including the appropriate program specific standards and provisions of 10 CFR 851, Appendix A.

These functional areas / program requirements include:

- Construction Safety
- Fire Protection
- Explosives Safety
- Pressure Safety
- Firearms Safety
- Industrial Hygiene
- Occupational Medicine
- Motor Vehicle Safety (including mobile equipment)
- Electrical Safety

CNS does not currently have any operations requiring implementation of a Biological Safety Program.

The implementing documents for these program requirements are captured in Section 7.

### **6.5.14 Training and Development Program**

The CNS Training and Development program is a key element of safe operations. Assuring worker competence is commensurate with responsibilities is an Integrated Safety Management guiding principle, and is vital for safe and effective job performance. Safe operations depend on trained and qualified employees who are knowledgeable of operations, facilities and equipment, and who also possess the requisite skills required for competent job/task performance. The CNS Training and Development program requires regular and consistent examination and evaluation of workers to assure the presence of knowledge and skills required for competent, safe job performance.

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The CNS Training and Development program is based on a Systematic Approach to Training. This approach to training provides the processes that direct and control the analysis of qualification requirements and training needs, the design, development and implementation of training and qualification/requalification activities, and the process for evaluating the effectiveness of training.

The CNS Training and Development program establishes and verifies that minimum qualification and experience requirements identified in DOE O 426.2 are met. Established processes assure personnel are capable of performing assigned work prior to assignment. Additionally, both fixed and flexible continuing training is provided to assure personnel maintain their job proficiency.

In addition, as noted in 10 CFR 851.20(a)(2), CNS recognizes the need and assures qualified worker protection staff (for example, certified Industrial Hygienists or Safety Professionals) direct and manage the WS&H program. In addition to external qualifications/certifications, employees in these positions are trained and qualified in accordance with the CNS training and development program.

A fundamental precept of the CNS training program is that line management is responsible for assuring the training and qualification needs of its organizations are met and that personnel are competent to perform assigned tasks. The Training and Development organization provides the systematic approach and processes that support line management in meeting this responsibility.

Line managers, Training and Development personnel and subject matter experts assess jobs activities and identify training needs that assure personnel have or obtain the required knowledge and skills to perform operations and maintain the facility in a safe and reliable manner. Training Program Descriptions or Requirements Profiles are fundamental to capturing the training and qualification requirements of CNS personnel. The Training and Development organization utilizes a systematic approach to training to provide the processes that direct and control the analysis of qualification requirements and training needs. However, as noted above, line management is responsible for assuring that training and qualification requirements are properly identified, documented and accomplished, so that personnel are competent to perform assigned tasks.

Line management, subject matter experts, job incumbents, and a design team work together to design task specific training that assures personnel receive the relevant information, knowledge, and skills required for safe performance of job duties and assignments. The needs analysis process is utilized to assess shortfalls, and necessary interventions, which could include the creation of new training or modification to existing training. It is a prerequisite to course development. The design phase encompasses appointment of the course developer and the establishment of a design team, to include, as applicable, the line manager and subject matter expert, as well as course instructor, job incumbents, and CNS Training and Development support. The design team determines terminal and

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enabling objectives, testing requirements, training setting, instructor qualification requirements, etc.

In general, courses that instruct task(s) that have the potential to directly impact the personal safety of employees, the public, or the environment, require a qualified instructor.

The development phase establishes the process for development of lesson plans and training content, identification of needed supporting information, creation of appropriate training aids and materials, determination of training activities, test development, and creation of course completion records. All test items, test questions, and test materials are prepared in advance and in writing along with critical content necessary for a satisfactory answer and are reviewed and approved by SMEs, Line Management, and Training and Development personnel prior to administration.

Visitors and subcontractors are required to complete training prior to beginning work with CNS. Visitors/subcontractors are trained as required for their level of access and/or work assignments. This ensures visitors/subcontractors have a full understanding of CNS requirements.

CNS Training and Development programs are evaluated by trainees. Additionally, internal and external assessments are conducted by the Risk Management & Governance Department, Training and Development personnel and DOE or NNSA personnel. The assessment function assures training programs are in compliance with all regulatory requirements and convey all program requirements to the intended training audience.

### **6.5.15 Subcontract Strategy**

CNS has established subcontract management program standards and requirements that are used for procured subcontracts and procured service subcontracts. The broad goals of subcontract management are to ensure that CNS-needed work is delivered in a quality manner, is safely and securely executed, and is delivered on schedule.

Subcontract management uses a graded approach and will vary from subcontract to subcontract. Factors influencing the degree of subcontract management include the nature and complexity of the work, the type of subcontract, and the experience of the personnel involved. Subcontract management involves not only the SA/PR, but also the STR, who plays a critical role in the outcome of the subcontract. The STR monitors technical performance and reports any potential or actual problems to the SA/PR.

CNS has established processes and procedures to assure subcontractors comply with their S&H plan including routine safety inspections, periodic management oversight assessments, and tracking/reporting systems for non-compliance issues. These processes include subcontractor and subcontractor employee involvement.

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Safety and health non-compliance issues that cannot be immediately corrected are placed in a safe configuration until the issues can be resolved and corrective actions implemented.

Health and safety requirements, including Suspend/Stop/Pause Work Authority, are flowed to CNS subcontractors by incorporating the ISM DEAR clause 48 CFR 970.5223.1 into the contract terms and conditions of each contract.

The type of subcontract to be used is a factor that is considered to ensure appropriate requirements are transmitted to subcontractors. Using a graded approach to differentiate between suppliers allows greater focus on more critical and complex procurements. The Company places subcontracts with commercial material suppliers, consultants, staff augmentation companies, construction subcontractors, equipment fabricators, and professional services suppliers. The CNS subcontractor strategy approach establishes a risk-based evaluation process to determine the appropriate level of ES&H requirements for applicable CNS subcontractors based on the subcontractor's scope of work.

The procurement process includes the completion of a subcontractor work activity ES&H evaluation form, and ES&H personnel review of the work activity including a determination of the applicable health and safety requirements.

Procurement personnel identify subcontractors capable of performing the work. Depending on the value of the work, the subcontract may need to be competed against multiple subcontractors. Some types of procurements may only be competed against pre-qualified subcontractors. Subcontractors are pre-qualified on the basis of ES&H criteria as well as technical and quality criteria.

Based on work scope, complexity, and/or associated hazards, specific ES&H submittals may be required before subcontract mobilization. These submittals are coordinated between the SA/PR, the STR and the appropriate ES&H subject matter experts.

### a. Requirements Flow-Down

There are several different types of requirements that flow down via the subcontracting process. Terms and Conditions are those standard business rules incorporated into the "boilerplate" legal requirements governing the business relationship between the Company and its subcontractors. The State of Work (SOW), technical specifications, engineering data sheets, catalog cuts and other technical documents are requirements of the contract. In addition to the "boilerplate" contract clauses, there are a series of specific contract clauses, many of which are mandatory due to either governmental regulation and/or prime contract requirements that may apply. The standard terms and conditions are contractually binding and delineate corporate and personnel safety roles and responsibilities of CNS subcontractors at all tiers.

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b. Construction and Service Subcontracts

For construction subcontracts, site specific procedures are in place to establish and flow down the applicable ES&H requirements to subcontractors. Project specific ES&H requirements are incorporated in the SOW and Division 1 specifications.

ES&H requirements for service subcontracts are implemented through a graded approach dependent on the level of hazard and job complexity. The site ES&H organization reviews the work scope and the identified hazards for each subcontract, in accordance with ES&H requirements, and determines the applicable ES&H requirements for the subcontractor work activity. The requirement that the subcontractor flow down their ES&H requirements to their subcontracts (at any tier) to the extent necessary to ensure compliance with the specified ES&H requirements is included in the Safety and Health clause in the standard terms and conditions of subcontracts.

c. Lower Tier Subcontractors

Lower tier subcontractors will have requirements flowed to them via their higher tier contractor. The technical requirements and scope will be developed by the higher tier and communicated via statements of work. Subcontractors are also generally afforded general latitude to establish their own business rules with their lower tiers. However, some clauses are mandatory flow-downs from the government to any lower tier subcontractor. For example, DEAR 48 CFR 970.5223-1, *Integration of Environment, Safety and Health into Work Planning and Execution*, requires that “The Contractor shall include a clause substantially the same as this clause in subcontracts involving complex or hazardous work on site at a DOE-owned or-leased facility.”

d. Implementation of Subcontractor Occupational Medicine Requirements

The occupational medicine requirements of 10 CFR 851 apply to subcontractors (at any tier) for workers who are on a DOE site more than 30 days in a rolling calendar year or are enrolled for any length of time in a medical or exposure monitoring program required by this rule and/or any other applicable Federal, State or local regulation. (See Section 3 for additional work activities and scope that is excluded from 10 CFR 851 requirements).

10 CFR 851.10 requires that the contractors' Worker Safety and Health Program describe how the contractor will comply with the requirements of the regulation (including the occupational medicine requirements) that are applicable to the hazards within their scope of work.

CNS requires subcontractors to comply with all OSHA medical surveillance requirements, based on the subcontractors' scope of work, and the OSHA requirements for the treatment of illnesses and injuries. Subcontractors are also



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subject to the occupational medical requirements for DOE approved Beryllium programs.

CNS occupational medicine program provides services to subcontract employees who are placed in the Human Reliability Program. In addition, subcontractors may be provided appropriate triage and stabilization before they are transported to an off-site medical facility.

CNS requires, through Request For Proposals, contract terms and conditions, and special requirements, that all subcontractors performing work at a CNS site, at any tier, have an occupational medicine program under the direction of a licensed physician meeting the credential requirements of Appendix A.8 (b) and personnel providing health services meeting the credential requirements of Appendix A.8(c). A written description of the subcontractor's occupational medicine program including proof of staff credentials is required for each applicable subcontract for work at CNS sites, and must be submitted upon request.

Each subcontractor's occupational medicine program contents are to be determined by its occupational medicine provider and based on the subcontractor's scope of work and associated hazards.

As discussed in DOE G 440.1-1B, the term "comprehensive" in 10 CFR 851 Appendix A, Section 8(a) refers to the specific services that the occupational medicine provider determines are appropriate, considering the specific work activities performed by the worker and are necessary for the occupational medicine program to be consistent with DOE requirements, e.g., respiratory protection, and substance-specific standards. The Guide also states that all possible services identified in the Rule are not necessary for all workers.

In terms of CNS subcontractors where the required occupational medicine services are provided by, managed, and administered by the subcontractor's occupational medicine provider, compliance with the 10 CFR 851 Appendix A.8 requirements will be the responsibility of the subcontractor and/or the subcontractor's occupational medicine provider.

The CNS site's Occupational Medical Director (OMD) is available to provide assistance to the subcontractor OMD (or equivalent) regarding determination of the appropriate occupational medicine services based on work scope and hazards. The CNS site's OMD may also provide support where a subcontractor's OMD (or equivalent) is prohibited from accessing an area (due to security requirements) to evaluate job conditions and issues.

### **6.5.16 Enforcement**

10 CFR 851 Subpart E authorizes the Secretary of Energy to issue citations and civil monetary penalties to NNSA contractors indemnified by the Price-Anderson Amendments Act, including CNS, for violations of DOE worker safety and health

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requirements. Through a Memorandum of Understanding between the NNSA Administrator and the Director of the Office of Enterprise Assessments, NNSA uses the services of the DOE Office of Enforcement to conduct investigations, identify potential regulatory violations, and make recommendations to the NNSA Administrator regarding enforcement action against NNSA contractors.

In addition, CNS participates in the voluntary reporting of non-compliances to 10 CFR 851 requirements, and CNS personnel are required to report 10 CFR 851 non-compliances. CNS sites must have an established process for screening and reporting of non-compliances.

The CNS enterprise process for enforcement coordination, including posting compliance orders as applicable, is documented in E-PROC-3003.

A wide range of site-level programs exist to meet the ISM core function regarding feedback and improvement. The CNS mechanisms for determining system effectiveness include assessments, performance measurements, and DOE or NNSA oversight feedback. The CNS assessment programs, lessons learned program, event recovery and notification process, critiques, occurrence reporting, incidents of security concerns, and various oversight programs, provide mechanisms/tools by which line management and workers learn from previous mistakes or feedback from those involved on how work might be accomplished better, more efficiently, and/or more cost effectively in a safe and secure environment. Monitoring and feedback includes provisions for performance measurement, problem identification, and problem prevention.

Fact Findings, Critiques, CA/MP meetings, and Causal Factors Analysis are used to evaluate abnormal events to identify areas that may require improvement in processes, procedures, equipment, training and qualification, and/or organizational management systems.

Programmatic issues are captured by the issues management system and assigned for disposition. This system is used to assure corrective actions and improvement activities are established and completed. Causes of process anomalies are determined and resolved at a level corresponding to the risk encountered to prevent recurrence. Controls are applied to assure corrective actions are complete and effective.

Continuous feedback and improvement opportunities are also provided from lessons learned. CNS has a "Lessons Learned Program" that is designed to improve operational safety by benefiting from the experience of others. Lessons Learned are prepared and distributed whenever there is an opportunity to share a valuable new work practice or warn others of an adverse practice, experience, or product. Lessons Learned are incorporated into procedure and work package revisions and are shared across facilities via the lessons learned program.

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In addition, pre/post-job briefings and other associated processes are used to evaluate the safety, security, and effectiveness of work execution, and the results or lessons learned are used to revise and improve work methods.

Associated performance metrics focus on essential parameters and are used to identify areas needing management attention if necessary. The performance metrics are transparent to NPO and viewable by employees via PerformanceTrack. PerformanceTrack provides vital information on site performance and operations, offering indicators of potential issues and a variety of other tools for effectively achieving contractor assurance.

### **6.6 ISM Feedback and Improvement Processes**

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### **6.6.1 System to Conduct Routine Inspections**

Numerous CNS organizations conduct various and routine safety and health inspections, observations and surveillances at CNS sites, including ES&H, Fire Department, Facility/Building Managers, Union representatives, managers, supervisors, and other members of the workforce. Anyone can conduct or participate in safety and health observations in the context of their organization. In addition, Management performs walk-throughs, which include safety and health observations.

### **6.6.2 Assessments**

The CNS Enterprise Assessments and Oversight (EA&O) program supports CNS Performance Excellence objectives, and is a mandatory and integral part of the CNS CAS. The EA&O program defines the processes to identify new or validate potential risks, and reduce the likelihood of subsequent events to ensure CNS successfully delivers its mission while maintaining the highest standards of safety, security, quality, and cost efficiency. Independent assessments/surveillances are conducted of programs, facilities, processes and systems for compliance, performance, and/or effectiveness. The results of the EA&O program activities provide senior leadership/functional-management with timely feedback to identify and implement improvements within the Integrated Safety Management framework. In addition, this program provides NPO with a shadow function to aid the collaboration between the assessment contact and federal counterpart (NPO) to specify shadow assessment activities.

Management assessments are also utilized to continually improve processes and activities. Findings from Management Assessments are included in the trend analysis process and are considered in the risk model used to plan annually scheduled assessments.

An integrated assessment approach to management assessment relies on the application of assessments, audits, performance indicators, trend analysis, and external oversight to critically review performance. Assessment activities include staff identifying unsafe work concerns, line self-assessments evaluating compliance with requirements, lessons-learned from abnormal operating experiences, program

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assessments, and comprehensive independent assessments and audits of performance, controls, and management systems.

Assessment and review results are documented and necessary corrective and preventive actions are identified, entered into a formal tracking system, and performed. Management assures these actions have been implemented and that there is systematic follow-up to assure effectiveness.

The EA&O program has formalized the analysis and evaluation of operational performance data, occurrence reports, nonconformance reports, safety indicators, and business indicators to detect trends in internal and external assessments. Assessment results at the facility and activity/task level are included in the analysis.

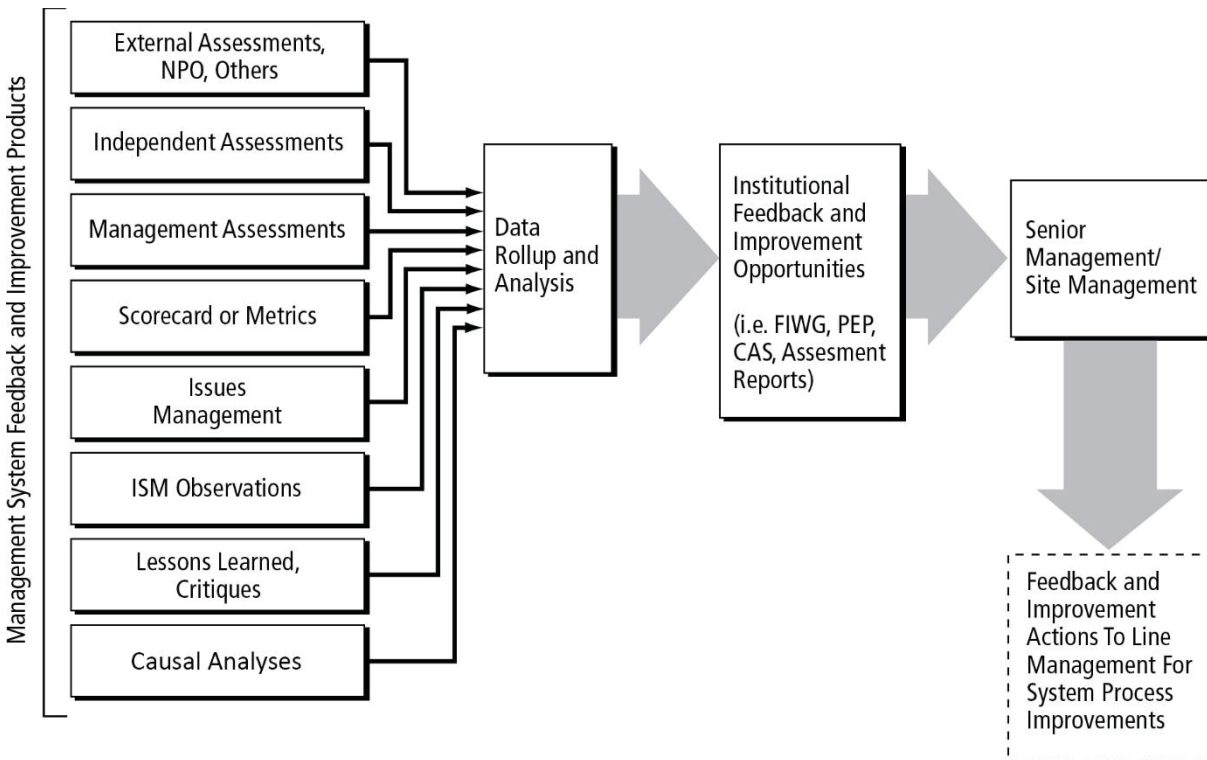
The site Safety & Industrial Hygiene Departments periodically survey facilities to identify potential hazards (e.g., chemical, ventilation, noise, heat, laser hazards, etc.) related to the physical condition of facilities and work operations. Historical information related to the facility and its operations is considered during the surveys.

Management and independent assessments provide continuous feedback and improvement opportunities regarding compliance, comprehensiveness, and effectiveness of the programs. The CAS and its associated assessment elements, including requirements, implementing documents, risks, controls, metrics, and validations, further facilitate maintenance and effectiveness of the programs.

### **6.6.3 Feedback and Improvement Reports**

CNS feedback and improvement reports such as the CAS Performance Report, provide senior line managers with feedback and evaluation mechanisms based on the review and roll-up of operational, safety, and security performance information generated from key sources of performance information and indicators. The process ensures continuous improvement of operational performance. (Reference Figure 3)

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**Figure 3 - CNS Feedback and Improvement Processes**

**6.6.4 Performance Excellence**

Performance Excellence is the organizational engine designed to propel Consolidated Nuclear Security, LLC (CNS), toward its ideal culture, creating a safe, secure, productive, and satisfying workplace. Through leadership training based on relevant organizational development theory, use of industry-leading risk management modeling and mitigation techniques, and application of world-renowned tools and approaches in continuous improvement, we will create a self-critical culture in constant pursuit of optimum performance. Supplying different, needed skills or capabilities from the outside together with new ideas and strategies can lead to behavioral and performance changes that, in turn, can affect new ways of thinking and cultural change. Performance Excellence brings the mindset of the future workforce.

**6.6.5 Senior Management Initiatives**

The Site Performance Review Board is a monthly meeting held at each site consisting of senior and key site leaders and chaired by the site manager. This meeting provides a forum for these leaders to review and act upon emerging issues, precursors, or trends that may impact operations at that site. Each Board reviews

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plant operations, including safety, security, quality, schedule, and cost performance, for improvement in managing and operating their facility. Topics routinely discussed during the meetings include: Site and Enterprise Key Initiatives, Metrics, Safety Culture, Emerging Issues, and Trends.

In addition, CNS sites have established Site Manager Safety Councils. The Safety Councils meet monthly with management representatives from the site organizations, including site labor union representatives, to discuss safety concerns requiring multi-organizational support. The Safety Councils also discuss current safety and health-related topics including performance trends and issues, recommendations for performance improvement, and campaigns for site-wide implementation.

### **6.6.6 Culture**

CNS aspires to create a safe, secure, productive, and satisfying place to work. We acknowledge that the only way to do so is for all of us, regardless of our roles, to work together. To realize true excellence, we must all be unwavering in our commitment to optimum performance at all levels – as individuals and as a group - in our personal performance, our processes, outcomes and the way we treat one another.

Our key values – integrity, trust, respect, teamwork, and excellence – create the foundation of our culture, define our character, and influence our behavior. Without these values, we cannot successfully achieve our mission. Every employee commits to maintaining a healthy culture through the following traits.

#### **Individual Commitment to Our Imperatives of Safe-Secure-Zero Defects-Deliver as Promised**

- o **Personal Accountability:** Everyone takes personal responsibility for our imperatives and seeks to maintain a work environment for all to work to their best potential.
- o **Questioning Attitude:** We avoid complacency and challenge existing conditions and activities to ensure that safety remains the priority.
- o **Effective Communication:** Everyone communicates both good news and bad news in an honest and timely manner.

#### **Management Commitment to Our Values, Principles, and Imperatives**

- o **Leadership Values and Actions:** Leaders demonstrate their commitment to our values, principles and imperatives through their decisions and behaviors.
- o **Decision Making:** Our actions and communications help us stay focused on our imperatives.
- o **Respectful Work Environment:** We display mutual respect for each

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other, and trust that employees are acting in the best interest of the mission.

### Management Systems

- o **Continuous Learning:** Opportunities to learn new ways to ensure operations stay within the approved operating envelope are sought out and implemented.
- o **Problem Identification and Resolution:** Issues potentially impacting our ability to operate within our imperatives (or approved operating envelope) are promptly identified, evaluated, and addressed.
- o **Environment for Raising Concerns:** We maintain a work environment where everyone has the freedom and the responsibility to raise concerns without fear of retaliation, intimidation, harassment, or discrimination.
- o **Work Processes:** We plan, control, and conduct work activities in line with our imperatives.

Our unwavering commitment is to create and maintain a continuously improving culture that emphasizes the safe performance of work as our overriding priority. We expect all employees will maintain a questioning attitude and raise concerns to management, and we expect management will accept and address the concerns while displaying our key values.

### 6.6.7 Safety-Conscious Work Environment

A safety-conscious work environment is considered as a culture where personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment, or discrimination. CNS creates, maintains, and routinely evaluates policies and processes that allow personnel to raise concerns freely.

CNS sites effectively implement policy supporting individuals' rights and responsibilities to raise safety concerns and does not tolerate harassment, intimidation, retaliation, or discrimination for doing so.

Managers and supervisors are trained to take ownership when receiving and responding to concerns, recognizing confidentiality if appropriate, and ensuring the concerns are adequately addressed in a timely manner.

In addition, CNS implements processes for raising and resolving concerns that are independent of line management influence. Safety issues may be raised in confidence and are resolved in a timely and effective manner.

### 6.6.8 Performance Measurement

Enterprise and site-level performance metrics are used to quantitatively judge performance in a wide range of areas, including safety management programs, in addition to production performance and business management. These metrics are



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continually evaluated for effectiveness and revised as needed. These metrics are also used to monitor the health of business processes, gauge the success of process improvement efforts and drive performance enhancements.

The focus of the metric process is continuous improvement through resolution of the questions:

- (1) How are we performing relative to strategic goals?
- (2) What are the causes of the delta between our targets and our performance?
- (3) What are the specific issues derived from these causes?
- (4) How do we resolve these issues to improve performance?

The metric process, as well as selected individual indicators, is modified as baselines are established, issues are more fully understood, process enhancements are implemented, and goals are refined.

In addition to site-level performance metrics, CNS utilizes ISM Safety Performance Objectives, Measures and Commitments (SPOMC) metrics to evaluate ISM program effectiveness in accordance with Appendix A.

### **6.6.9 VPP**

The VPP implementation enables a focus on safety culture elements that create the desired ISM environments. The basic elements of VPP are consistent with safety culture focus areas. These elements promote a shift from mere compliance toward excellence. They emphasize continuous improvement and long-term performance, and they are consistent with the intent of ISM.

Being a VPP site indicates all employees promote safety and health excellence. It shows we have a cooperative effort between labor and management, and CNS leadership is committed to make this bond stronger than ever.

VPP sites must meet five elements:

- (1) Management leadership
- (2) Employee involvement
- (3) Worksite analysis
- (4) Hazard prevention and control
- (5) Safety and health training

CNS is committed to fostering employee ownership of Safety. We believe that zero injuries, zero exposures, and zero releases are achievable goals, and we will be successful together.

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### **6.6.10 People - Based Safety**

At Pantex, People-Based Safety (PBS) is one aspect of our commitment to employee involvement through interaction. PBS encourages employees to participate with safety by conducting observations of safety related behaviors to identify both safe and at risk behaviors as well as, barriers and hazards that are preventing employees from working safely.

The purpose of the PBS process is to reduce at-risk behaviors, leading to reduced injuries and severity of injuries at the Pantex site. The intent of this process is to generate a safety-conscious and responsible work force with the use of confidentiality, observation, feedback, education, and coaching of employees to better understand the safety of their own practices.

Utilizing this process, employees observe each other for specific safe behaviors, eliminate or mitigate exposure to hazards, help to determine causes for at-risk behaviors, and uncover barriers to working safely.

Observations are followed by an interactive feedback phase, providing employees an opportunity to give and receive feedback about working safely, working conditions, and barriers to performing work safely.

Information from these observations is used to generate reports that help determine how safely we are working, determine areas of concern, uncover barriers to working safely, and develop action plans and solutions.

At Y-12, the Mission Possible: Top Gun program has been implemented to provide tangible employee involvement in the ES&H implementation. The Top Gun program is a voluntary employee participation, people-based program and recognition process to enhance employee involvement and prevent occupational injury/illnesses by raising safety awareness and reducing worker at-risk behaviors. It raises employee awareness of hazards and at-risk behaviors, and makes safety personal through members' willing participation. Top Gun features employee/supervisor interaction and cooperative involvement, and provides recognition for active participation. It motivates people to achieve the desired behaviors by getting them directly involved in their own safety and that of their co-workers.

The Top Gun process participation is easy. Employees are given a checklist containing items aimed at promoting safety and re-enforcing safe behaviors. This checklist contains various activities that each employee can accomplish themselves. Many of these activities are already being completed by employees performing usual job tasks, but this reinforces those actions. Employees who participate must complete and document a minimum number of the listed activities to receive the recognition. Employees who complete the checklist are recognized through participation celebration activities.

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### **6.6.11 Operating Experience Initiatives**

CNS reviews and analyzes operating experience information. Operating experience is highly valued, gained and shared routinely by utilizing resources provided internally such as with lessons learned and NPO Facility Representative reports and externally from publications/systems such as the DNFSB, DOE Occurrence Reporting Processing System, DOE Operating Experience Summaries, and DOE Lessons Learned. This information is analyzed for application to improve CNS operations and provided to CNS employees for learning purposes.

In addition, CNS recognizes that through participation with DOE, NNSA, and other contractors, including forums such as the ISM, VPP, and Energy Facility Contractor Group workshops, and bench marking, valuable operational experience is obtained and shared. CNS technical personnel are also involved with applicable professional organizations that provide valuable learning opportunities.

### **6.6.12 Injury and Illness Trending**

CNS ES&H personnel track and trend employee injuries and illnesses and brief senior management on injury and illness trends, as well as traffic and construction incidents. Specifics of cases and incidents are discussed including causal analysis results, corrective actions, and recommendations for performance improvement.

### **6.6.13 Incident Investigations**

Employees are encouraged to immediately report incidents and events related to occupational injuries and illnesses, property damage, vehicle damage, and near misses to their supervisor.

Management of an incident begins immediately when an employee reports an incident or an employee reports to the site's occupational medical Facility for evaluation and treatment of an on-the-job illness or injury.

Necessary information is obtained from affected individuals, witnesses, their supervisor, and the incident scene as appropriate. When an investigation is warranted, a safety professional assists with the investigation and analyzes investigation data. A Causal Analysis process is utilized to identify the cause of the accident and develop corrective actions designed to prevent recurrence, when appropriate. Corrective actions are tracked to completion by utilizing site-specific action tracking systems. The rigor and detail of the investigation is determined by the significance of the incident.

### **6.6.14 Radiological Exposure Analysis**

Radiation Safety/Radiological Control personnel track and trend radiological exposure data and provide it to senior management in the As Low As Reasonably Achievable (ALARA) and radiation exposure reports, including enterprise and site

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level performance metrics. The reports provide goals and cumulative doses by areas and programs, and trends in cumulative dose by functional area and program. Processes are utilized to identify the cause of the dose and develop corrective actions designed to prevent recurrence, when appropriate. Corrective actions are tracked to completion.

### **6.6.15 Environmental Program Improvement**

CNS establishes environmental objectives and specific targets each fiscal year based upon the significant environmental aspects associated with CNS activities, services, and products. These objectives seek to improve environmental program management associated with CNS operations. Objectives are selected considering environmental policy, regulatory compliance, pollution prevention and other relevant factors. The EMS Coordinator tracks the objectives and reports status to CNS senior management on a routine basis.

### **6.6.16 Enterprise Risk Management Process**

The enterprise risk management process implements the American National Standards Institute /International Organization for Standardization/Project Management Institute national standards for risk management, project management, program management, and portfolio (enterprise) management. The risk management process is being integrated into the management of all aspects of the Annual Controlled Baseline, the Cost Reduction Plan, functional organizational management, and other areas of concern, such as unfunded legacy risk. Risk should be a standard topic in all progress review meetings, ensuring constant management attention, action, and visibility. Risks will be proactively and systematically identified during detailed planning of all work scope activity, including both components of risk – threats and opportunities. Managers are accountable for owning the risks that affect their work scope responsibilities and for systematically working to reduce or eliminate threats and realize opportunities.

### **6.6.17 DOE or NNSA Oversight**

NNSA provides day-to-day oversight of facility operations. NNSA staff review safety documentation, evaluate procedure compliance, audit various ES&H programs, and investigate operational events. They provide direct feedback to DOE or NNSA area management on performance of CNS and its subcontractors. Other external oversight and assessments, including shadowed assessments, are often conducted and provide feedback on processes and activities. This feedback is used by CNS to improve overall performance.

## **7. Implementing Elements**

This section contains a link to the web-based table that establishes the primary implementing documents for the ISM/WS&H Program requirements, including the applicable functional areas cited in 10 CFR 851.24 and 10 CFR 851 Appendix A. The table is intentionally established as a

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separately maintained and updated document. Updates to this table do not require notification and/or submittal to NPO for review or approval.

Click the following link for the ISM/WS&H Program Requirements Crosswalk and Implementing Documents Table:

<http://home1.y12.doe.gov/isms/pdf/ism-wsh-req-crosswalk-and-docs.pdf>

### **8. Appendices**

APPENDIX A - Annual Review and Notification Process

APPENDIX B - Workplace Safety and Health Requirements

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### **APPENDIX A - Annual Review and Notification Process**

The CNS contract (DE-NA0001942) contains DEAR 48 CFR 970.5223-1. This clause requires CNS to initially submit to the applicable DOE Contracting Officer documentation of its ISM program for review and approval.

This clause also requires CNS, on an annual basis, to review and update, for DOE approval, its safety performance objectives; performance measures; and commitments consistent with and in response to DOE's program and budget execution guidance and direction.

The CNS contract also contains 10 CFR 851, 10 CFR 851.11 of this Rule requires CNS to submit an updated worker safety and health program, to the appropriate Head of DOE Field Element, for review and approval whenever a significant change or addition to the program is made, or a change in contractors occurs.

10 CFR 851.11, at a minimum, also requires CNS to submit annually to DOE a letter stating that no significant programmatic changes are necessary in the currently approved worker safety and health program.

Recognizing the CNS WS&H program is embedded within the CNS ISM program, this section describes how CNS will comply with the above referenced DEAR and 10 CFR 851 requirements in terms of providing DOE/NPO with the appropriate notification.

The types of notifications are as follows:

- (1) Notification of the submittal of the entire ISM/WS&H program for DOE/NPO review and approval. Other than the initial CNS submittal, this type of notification will primarily be driven by a significant programmatic and/or process change or addition to the program requiring a major revision of the entire CNS ISM/WS&H Program. For example, a significant change or addition to the program is defined as a newly recognized or added hazard that is not effectively controlled by measures outlined in the currently approved program; [**NOTE:** CNS will submit a copy of the approved WS&H program to the DOE Assistant Secretary for Environment, Safety and Health.]
- (2) Notification of the submittal of CNS ISM/WS&H Program page revisions for DOE/NPO review. This type of notification will primarily be driven by non-significant changes that occur as a result of the various feedback and improvement processes and/or administrative and editorial changes.
- (3) Annual notification stating no significant programmatic changes are necessary to the CNS ISM/WS&H Program.
- (4) Annual notification establishing safety performance objectives, measures, and commitments for DOE/NPO review and approval, including declaration of program effectiveness.

#### **Schedule**

- Annual notification of program status (Items 1, 2, and 3 above) submitted by September 30 of each Fiscal Year.

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- Annual submittal establishing SPOMC (Item 4) by September 30 of each Fiscal Year.
- Monthly submittal of ISM Effectiveness Chart and ISM Dashboard Summary.

Additionally, CNS will notify DOE/NPO in writing of any written direction or instruction from DOE/NPO that contradicts, limits, or compromises the requirements of protecting the public, the worker, and the environment.

### **ISM Program SPOMC and Effectiveness**

48 CFR 970.5223-1 requires contractor's ISM Systems (Programs) to describe how they will measure system effectiveness.

The CNS ISM SPOMC are developed and implemented to identify, track, and measure ISM Program effectiveness. ISM SPOMC include select objectives, measures, and commitments, including performance metrics for each. The ISM SPOMC will be submitted annually to DOE/NPO for review and approval and will include a determination of program effectiveness.

Based upon the maturity of the existing CNS ISM Program and the development and use of enterprise and site-level performance metrics, an ISM Program tool will be developed to evaluate program effectiveness monthly. The ISM Program tool will include a detailed ISM Program Effectiveness Chart depicting existing ES&H and select leading and lagging performance metrics "binned" into the five ISM core functions, creating a snapshot of overall performance and ISM Effectiveness. The detailed ISM Program Effectiveness Chart will provide ratings for each of the metrics included.

In addition, an ISM Program Dashboard summary chart will be developed to provide a trend of ISM performance for each of the five ISM core functions over time.

An ISM Effectiveness chart and ISM Dashboard summary will be submitted to DOE/NPO on a monthly basis.

### **ISM Program Maintenance**

The CNS ISM Program will be revised when necessary for the purpose of incorporating necessary changes from updates to the CNS Contract; regulatory requirements, including but not limited to, 10 CFR 851; applicable ISM DEAR clauses, applicable DOE ISM Orders, Manuals and Policies; and NPO's ISM System description.

The CNS ISM Program Manager is responsible for maintaining the integrity of the processes that integrate the ISM Program by ensuring the review of changes to current and newly-proposed implementing procedures. Site ISM Program Leads will be included as an affected reviewer for all Command Media documents (policies, strategy documents, and procedures) in order to maintain integrity of the processes that implement the ISM Program.

Applicable changes, conditions, or workplace safety and health standards directed by DOE consistent with the requirements of 10 CFR 851 and DEAR 970.5204-2, *Laws, Regulations and DOE Directives* and associated contract clauses will be incorporated in the CNS ISM Program or its associated implementing documents.

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### **APPENDIX B - Workplace Safety and Health Requirements**

On February 9, 2006 when DOE promulgated 10 CFR 851, *Worker Safety and Health Program*, it adopted several industry standards to establish the baseline technical safety and health requirements for DOE workplace operations. These standards were already required by DOE Order 440.1A, Worker Protection Management for DOE Federal and Contractor Employees, which established a comprehensive worker protection program that provided the basic framework necessary for contractors to ensure the safety and health of their workforce.

DOE recently amended the 10 CFR 851 regulations to update the safety and health standards and delete the obsolete directives currently incorporated by reference. DOE replaced the existing references to industry safety and health standards with direct references to the latest versions of the appropriate standards. The 10 CFR 851 Technical Amendment became effective January 17, 2018. Compliance was required starting January 17, 2019.

The 10 CFR 851 Technical Amendment is available here:

[https://pantex.energy.gov/sites/default/files/10\\_CFR\\_851\\_Technical\\_Amendment.pdf](https://pantex.energy.gov/sites/default/files/10_CFR_851_Technical_Amendment.pdf)

10 CFR 851 explicitly references specific editions of national consensus codes and standards. The editions listed may not be the latest published editions that are typically implemented at CNS sites to ensure worker safety, or the ones implemented by commercial vendors in providing services and products to CNS. In general, the organizations that publish national consensus codes and standards intend that the latest editions of their documents be used by industry and these codes/standards are vetted through their approval process to ensure that the latest editions provide equivalent levels of protection when compared to the previous editions. The responsible CNS organizations will typically follow the latest edition of these codes and standards, following evaluation to ensure a successor version of the 10 CFR 851 referenced version affords the same or better protection to the workers.

CNS identified a gap at Y-12 in terms of fully implementing the new requirements of NFPA 70 National Electrical Code and NFPA 70E, Standard for Electrical Safety imposed by the 10 CFR 851 Technical Amendment. The impact assessment for these two documents revealed that the arc-flash labeling requirements have become more prescriptive than previous versions and Y-12 was required to update some existing labeling and generate new labeling for electrical equipment that was previously understood to be “grandfathered” by earlier versions of these regulations.

In accordance with correspondence dated March 13, 2018 from Matthew B. Moury, Associate Under Secretary for Environment, Health, Safety and Security, CNS provided, via a separate submittal, a written hazard abatement plan that meets the requirements specified in Section 851.22. The Y-12 ARC-Flash Labeling Hazard Abatement Plan, Revision 1 is a stand-alone addendum to the Consolidated Nuclear Security (CNS) Worker Safety and Health Program (WSHP) and was approved by NPO on January 9, 2019. Implementation continues to progress in accordance with the approved plan.

It should be noted that nothing in the 10 CFR 851 Rule precludes CNS from taking any additional protective action that is determined to be necessary to protect the safety and health of workers.



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For the design and construction of new or modified facilities, requirements are established through the development of the Code of Record during the conceptual design phase of a project. The Code of Record will specify the specific editions of the national consensus codes and standards to be used. The Code of Record is maintained under configuration control through the remainder of a facility's life, with changes to the Code of Record evaluated by the project on a case-by-case basis.

### **Equivalences**

In addition to compliance with the above listed requirements, CNS has an established equivalence process in place for Pressure Safety requirements and for Explosives Safety requirements, which have been previously approved by NPO. At the Y-12 site, the equivalence process for Pressure Vessels and Piping systems is documented in procedure Y17-004, *Pressure Vessels, Systems and Relief Devices*, and establishes appropriate requirements, reviews and approvals. At Pantex, the site has an approved Explosives Safety Manual, MNL-240176, which establishes the site requirements involving the development, testing, handling and processing of explosives. This Pantex manual meets or exceeds the existing requirements of 10 CFR 851, including the OSHA 1910 requirements and DOE Manual 440.1-1A, which was specifically developed to address explosives activities at DOE sites. Note that the DOE Manual has been replaced by DOE Standard 1212, which the current Pantex Manual also complies with.

The equivalent processes established for these two program areas ensure that CNS has an established program or process that clearly provides a level of employee protection equal to or superior to the intent of the 10CFR 851 required specific codes or regulations.

Approval of E-SD-2009 by NPO indicates continued approval of these equivalent processes.