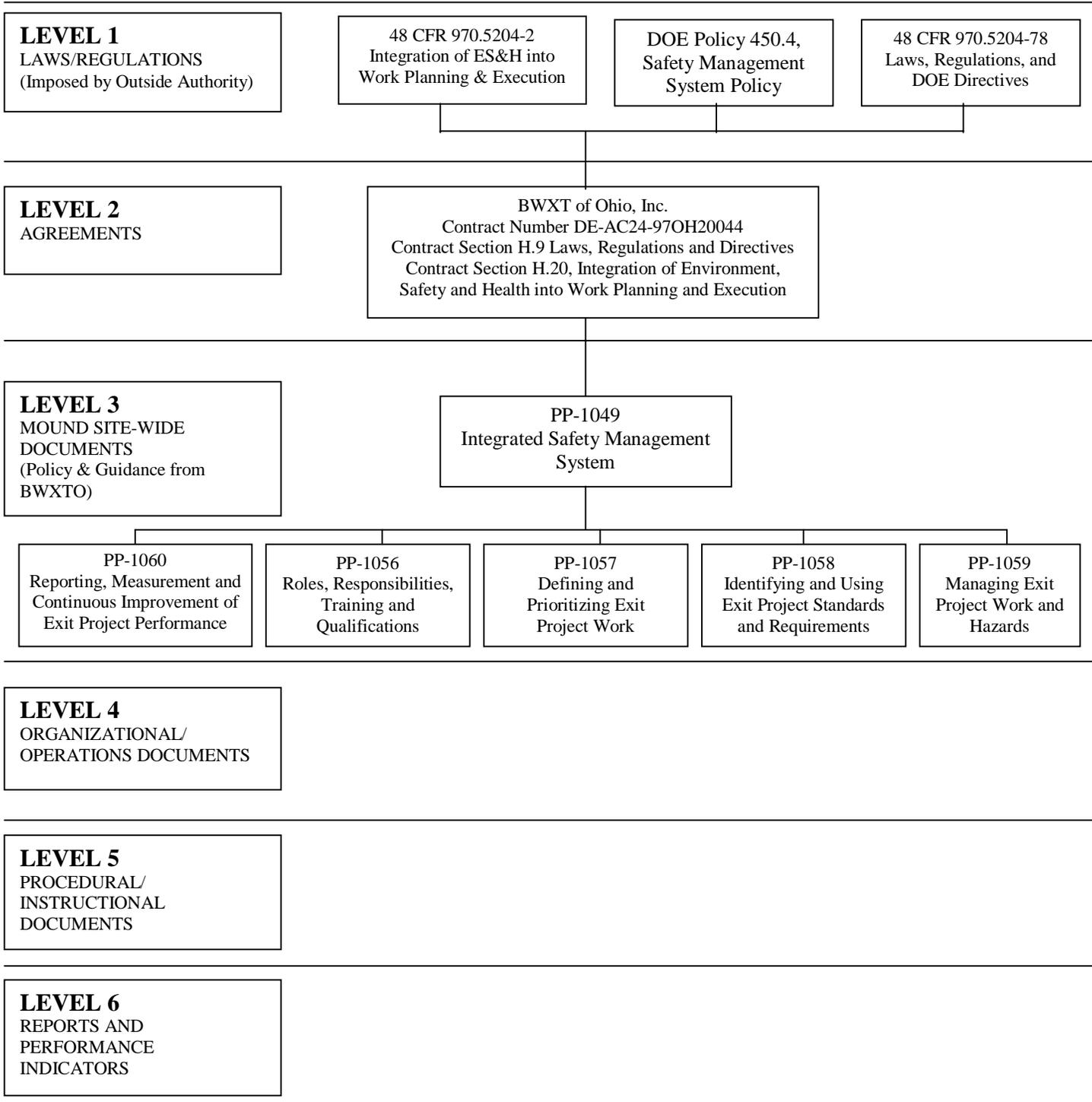




**ISMS IMPLEMENTING POLICY  
PP-1049A, ISSUE 6, Page 2**

**INTEGRATED SAFETY MANAGEMENT SYSTEM DESCRIPTION**

**HIERARCHY FLOW CHART**



## **PUBLICATION RECORD**

<b>ISSUE</b>	<b>APPROVAL DATE</b>	<b>TITLE</b>	<b>ACO NO.</b>	<b>EFFECTIVITY DATE</b>
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6	10-11-01	Integrated Safety Management System Description	010374MD	9-18-01

**\*MD-10478 was integrated into the ISM process as PP-1049A. MD-10478 was retired**

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<b>Description</b>			
TECHNICALLY RESPONSIBLE	ECN NO.	EFF. DATE	PAGE
<b>R. L. Higgins</b>	<b>010374MD</b>	<b>9/18/01</b>	<b>4 of 66</b>

Denotes change

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## 1. INTRODUCTION

### 1.1 Executive Summary

In response to DNFSB Recommendation 95-2, the Department of Energy (DOE) committed to institutionalizing a complex-wide Integrated Safety Management System (ISMS). To accomplish this commitment, DOE established contract clauses requiring contractors to follow ISMS objectives, guiding principles, and functions, and to describe the approach for implementing and tailoring an ISMS to the contractor's site/facility or activities.

This document describes BWXTO's Integrated Safety Management System (ISMS), fulfilling the BWXTO contract requirement, the intent of DOE Policies P 450.4, P 450.5 and P 450.6, and the Department of Energy Acquisition Regulation (DEAR) clause 970.5204-2.

BWXTO has effectively streamlined its management systems to more closely align with DNFSB Recommendation 95-2 as illustrated in Figure 1. These Management systems have been integrated, institutionalized, and promulgated via BWXTO policies, procedures, and practices, and are tailored to align with the seven Guiding Principals, worker involvement, and the five core functions of Integrated Safety Management. The specific BWXTO policies, procedures, and practices are noted in Appendix A, the ISMS Matrix.

This ISMS description is arranged in 8 sections:

[1] Introduction

Provides an overview of ISMS.

[2] Safety Management System

Discusses the ISMS Objectives, Principles, and Core Functions and provides BWXTO's strategy for implementing the ISMS at Mound, outlines the responsibilities for ISMS implementation, and explains how implementation is achieved through various mechanisms.

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### 1.1 Executive Summary (Continued)

[3] Environmental Systems

Discusses how environmental protection requirements are integrated into the ISMS framework.

[4] BWXTO Safety Management System Mechanisms

Explains how the ISMS Guiding Principles and Core Functions are implemented at Mound through the use of policies and procedures.

[5] Laws, Regulations, Standards, and DOE Directives

Discusses the process by which standards and requirements are incorporated in the ISMS.

[6] Process for Evaluating and Resolving Non-Compliances

Explains how BWXTO assesses its operations for compliance with standards and requirements and describes the process by which non-compliances are evaluated and closed out.

[7] Process for Flow Down of ISMS Requirements

Describes the process by which ISMS Requirements are translated into site policies and procedures and discusses the flow down of ISMS requirements to subcontractors.

[8] Safety Management Description

Document Use and Change Control Process - describes how this document is designed to be used by site employees and how configuration of the document will be maintained.

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## 1.1 Executive Summary (Continued)

The elements of the BWXTO ISMS are:

### Define Scope of Work

BWXTO missions are translated into work by setting expectations, allocating resources, and prioritizing tasks.

- PP-1057, *Defining and Prioritizing Exit Project Work*
- PP-1057A, *Defining Work Scopes*
- PP-1057B, *Risk- Based Prioritization of Work*
- PP-1057C, *Project Controls System*

### Hazard Identification

Hazards associated with the work are identified and analyzed to ensure that proper preventive and mitigative safety controls are in place.

- PP-1059, *Managing Exit Project Work and Hazards*
- PP-1059A, *Integrated Work Control Program*
- PP-1059B, *Analysis and Control of Hazards*

### Standard Selection

BWXTO selects standards and requirements that properly implement appropriate safety controls and assures protection of the public, workers, and the environment.

- PP-1058, *Identifying and Using Exit Project Standards and Requirements*
- PP-1058A, *S/RID Development and Approval*
- PP-1058B, *Document Hierarchy*
- PP-1058C, *Exit Project Directives System*

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### 1.1 Executive Summary (Continued)

#### Implementation

BWXTO believes the three elements above to be prerequisites to “DO WORK SAFELY.” These prerequisites are translated into procedures governing facility-specific activities. Worker involvement is a key success strategy in all implementation mechanisms.

- PP-1059A, *Integrated Work Control Program*
- MD-10286, *Mound Safety & Hygiene Manual*
- PP-1059D, *Conduct of Operations*
- PP-1060A, *Quality Assurance Program*

#### Assessment

BWXTO confirms readiness before operations begin. BWXTO also has mechanisms to confirm readiness throughout the facilities’ life cycle.

Examples of mechanisms used to collect data for analysis and feedback:

- Self-assessments
  - Management assessments
  - Independent assessments
  - Performance indicators
  - Post job reviews
  - Critiques
  - Employee suggestions
- 
- PP-1059E, *Startup and Restart of Nuclear Facilities*
  - PP-1060C, *Self-Assessment and Corrective Action Program*
  - PP-1059A, *Integrated Work Control Program*

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### 1.1 Executive Summary (Continued)

#### Evaluation

Management evaluation allows BWXTO to analyze feedback information to measure performance against expectations and identify improvement opportunities.

- PP-1060B, *Price Anderson Compliance Program*
- PP-1060D, *Occurrence Reporting and Processing of Operations Information Program*
- PP-1060E, *Lessons Learned Program*

These elements are performed within a work culture and environment that incorporates the seven ISM Guiding Principles and strong worker involvement to optimize the continual emphasis on, and improvement in, the management of environment, safety, and health at Mound. Integrating safety into the work is not a new concept at BWXTO.

### 1.2 Background

The framework for safety and health across the DOE complex is based upon a set of written Policies, Rules, Orders, and Standards (hereinafter referred to as standards). The implementation of these standards at Mound establishes a safe workplace for the protection of the worker, the public, and the environment.

The Defense Nuclear Facilities Safety Board (Board) has issued and the Secretary of Energy has accepted three sets of recommendations (90-2, 92-5, and 94-5) concerning the use of standards by contractors at the DOE defense nuclear facilities, and the level of conduct of operations to be maintained at these facilities.

Recognizing the similarity of content in these recommendations, the DNFSB combined them in recommendation 95-2 in October of 1995. The Secretary accepted the Recommendation, and broadened its applicability across the Department with the publication of DOE P 450.4, *Safety Management System Policy*.

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### **1.2 Background (Continued)**

Subsequently, on April 14, 1998, the Secretary of Energy released a formal Policy statement on environment, safety, and health which emphasized several important points:

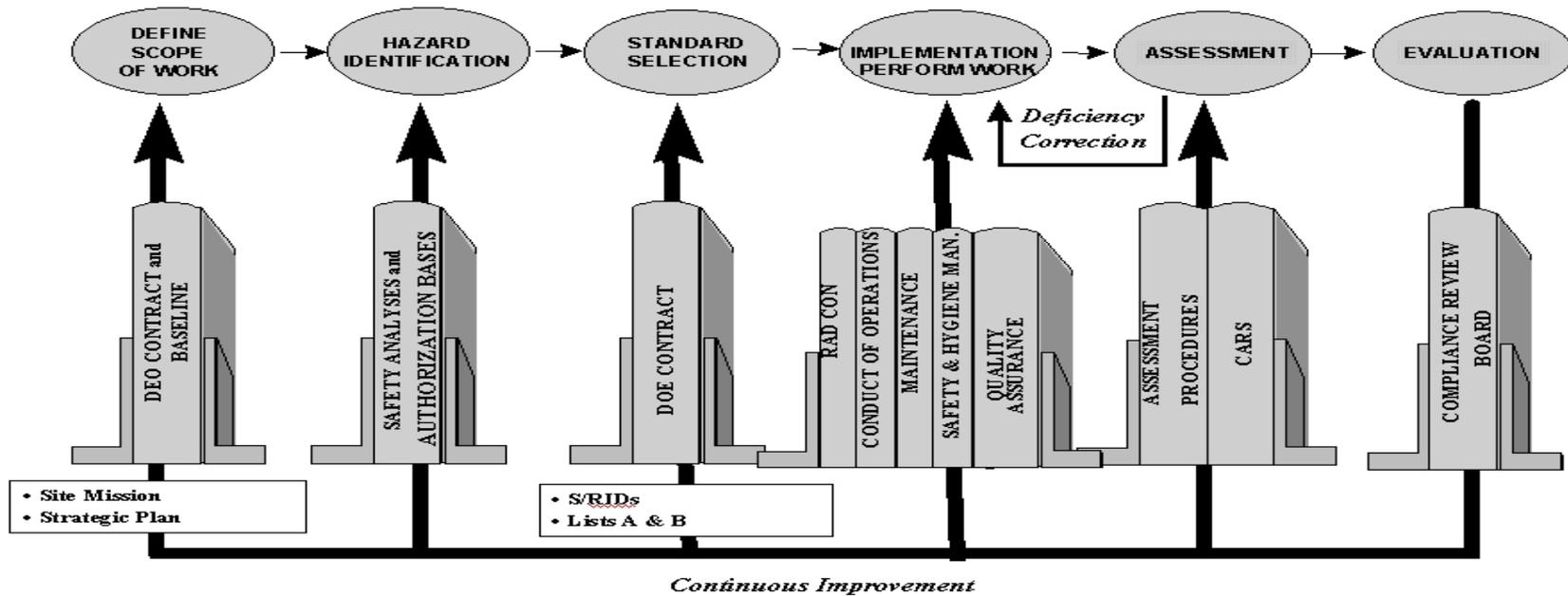
- All managers and workers must accept as their responsibility a concerted and sustained effort to achieve Integrated Safety Management at the Department of Energy;
- The fundamental premise of Integrated Safety Management is that all accidents are preventable through close attention to work design and hazard control, and with substantial worker involvement in teams that plan work and select appropriate safety standards;
- Management must also be committed to a work environment that allows free and open expression of safety concerns, and where workers fear no reprisals or retaliation;
- Workers are our most important resource for preventing and reporting hazards and potentially unsafe practices; and
- The Department is establishing a goal of “zero tolerance” for serious accidents that result in life-threatening injuries or major environmental contamination

The BWXTO ISMS has been developed and is being implemented in a manner to fulfill the intent of these policies.

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FIGURE 1 — BWXT of OHIO Integrated Safety Management System



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### 2. PURPOSE

This document describes the Integrated Safety Management System (ISMS) used to ensure safety is integrated into work performed under Contract No.: DE-AC24-97OH20044 (hereinafter known as “the Contract”) between BWXT of Ohio, Inc. (BWXTO) and the DOE. For purposes of this document, the term “safety” includes all aspects of environmental, safety, and health management including pollution control and waste minimization. This document fulfills the intent of DOE Policies P450.4, P450.5 and P450.6, DOE OH Procedure OH-40.5003, and the Department of Energy Acquisition Regulation (DEAR) clause 970.5204-2.

The elements of the BWXTO ISMS are an integral part of the company's management philosophy and are considered commitments for safe performance during the Mound Exit Project. This document is a complete description of the elements and their functional relationship in the context of an integrated system at Mound. The elements of the BWXTO ISMS include McDermott Company’s “Target Zero” approach and other infrastructure safety programs.

The ISMS is a dynamic system that will continue to support worker, public, and environmental safety as the work by BWXTO progresses towards the final exit from the site. The ISMS will also evolve in response to new safety standards, including emerging DOE and industry consensus standards and will continue to place high value on worker input and involvement.

### 3. SCOPE

The ISMS described herein applies to all work performed by BWXTO, as well as work subcontracted by BWXTO. The term BWXTO is defined as BWXT of Ohio, Inc., including McDermott Corporation’s BWX Technologies and its partners:

- Washington Group
- Weston
- Los Alamos Technical Associates
- Unisys

The BWXTO partner companies comprise a single seamless management team that is jointly and severably responsible for complying with the ISMS. In addition, the ISMS is applied to subcontractors.

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### 4. SOURCE REQUIREMENT DOCUMENTS

DOE P 450.4, *Safety Management System Policy*  
DOE P 450.5, *Line Environment, Safety and Health Oversight*  
DOE P 450.6, *Secretarial Policy Statement ES&H*  
DOE Ohio Field Office Standard Operating Procedure No. OH-40.S003, *Ohio Safety Management Policy*  
DEAR Clause 970.5204-2

### 5. SAFETY MANAGEMENT SYSTEM

#### 5.1 Overview

The DOE *Safety Management System Policy*, DOE P 450.4, subdivides the concept of the ISMS into six primary components; Objective, Functions, Principles, Implementation, Responsibilities, and Mechanisms. The BWXTO ISMS Management Policy PP-1049, *Integrated Safety Management System*, formally adopts this policy and BWXTO's Environment, Safety and Health Policy, outlined in MD-10286, *Mound Safety and Hygiene Manual*, describes the company's commitment to Integrated Safety Management.

The ISM Guiding Principles and Core Functions are addressed in an integrated system framework that translates the Policy and Objective into operational ES&H management at the Site. The Guiding Principles and Core Functions of ISM have been integrated and mapped into an ISMS framework as depicted in Figure 2. Worker involvement in every aspect of the process is a prerequisite to effective implementation of BWXTO's Integrated Safety Management System.

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### **5.2 Objective — Do Work Safely**

The objective of doing work safely starts at the policy level, as mentioned below, and is promulgated through implementing mechanisms such as the Integrated Work Control Program procedure. This amplifies clear alignment from senior management to the worker on this critical objective at Mound, as stated in the Mound Safety Management Policy implemented to formalize this objective for employees:

“The safety and health of every individual and the protection of the environment are essential goals of BWXTO in designing and implementing work for the Mound Exit Project.” No aspect of the project “... is considered so important or urgent that employees, contractors, or the public will be endangered or the environment jeopardized in the performance of work.”

### **5.3 Guiding Principles**

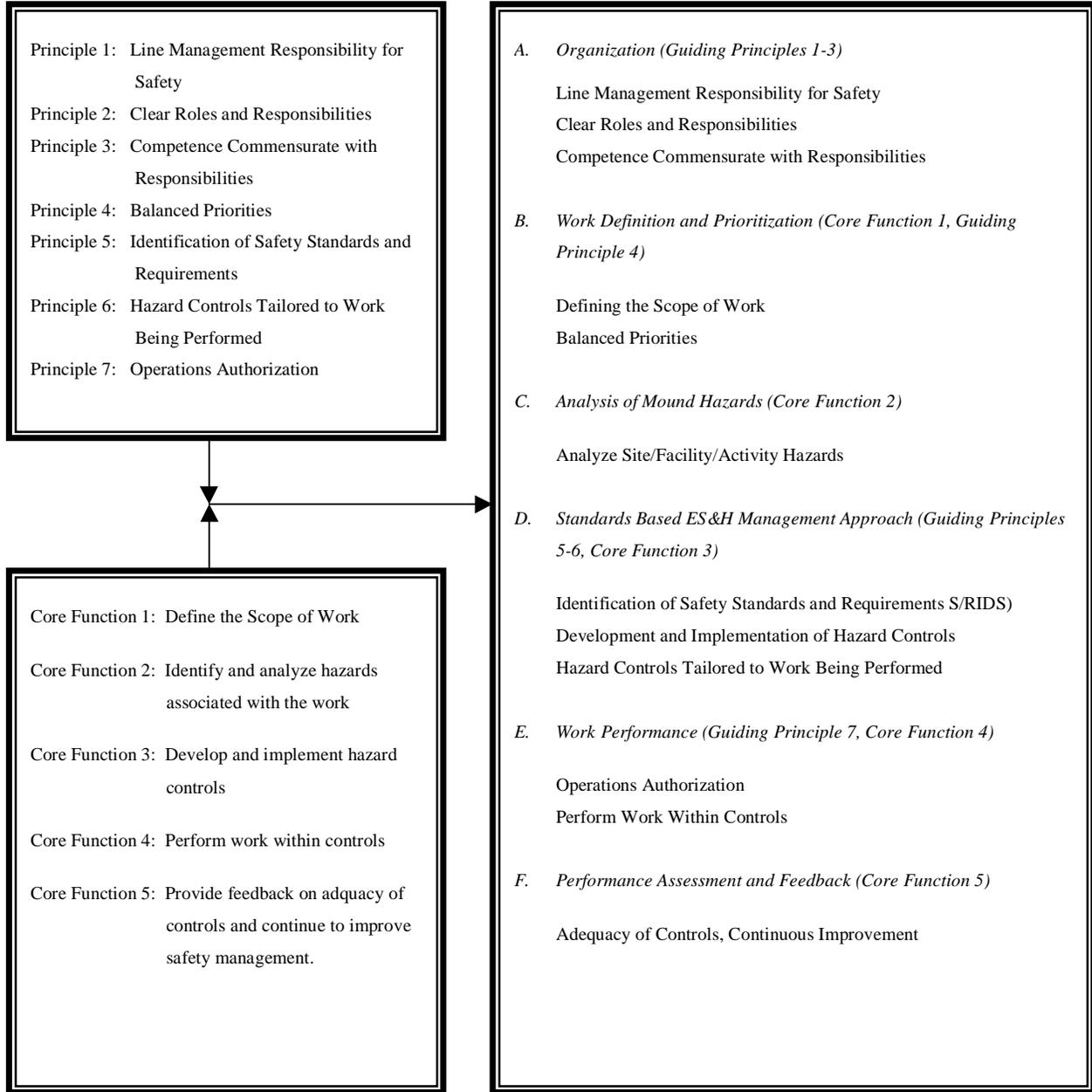
The Guiding Principles are fundamental policies that guide actions from the development of environment, safety, and health policies and procedures to the planning, conduct, and assessment of work. BWXTO’s institutionalization of these interrelated guiding principles helps ensure that the management structure has

personnel who are focused on safety, understand their assignments, and are capable of carrying out the core safety management functions. Worker involvement in all aspects of the ISMS is emphasized. The BWXTO mechanisms to ensure ISM implementation and integration of these guiding principals into work activities is covered in Section 7 and depicted in Appendix A.

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**FIGURE 2 — Integrated Safety Management System Framework**



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### 5.3.1 Line Management Responsibility for Safety

Line management is directly responsible for the protection of the public, the workers, and the environment. As a complement to line management, the Department's Office of Environment, Safety, and Health provides safety policy, enforcement, and independent oversight functions. This principle, emphasized in both this document and BWXTO's Policy, PP-1049, *Integrated Safety Management System*, is implemented via the site's OPA-98-0014, *Manual of Environmental Practices*, MD-10286, *Mound Safety & Hygiene Manual*, and PP-1059A, *Integrated Work Control Program*.

### 5.3.2 Clear Roles and Responsibilities

Clear and unambiguous lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels within the Department and its contractors. This principle underlies the BWXTO Exit Project organizational structure.

Project Managers are responsible and accountable for all activities in their projects.

Support Services Managers are responsible for providing trained and qualified personnel to the Project Managers to support project activities. Support Services Managers are also responsible for providing the site administrative infrastructure programs, policies, and procedures required to translate ISMS into action at both the programmatic and activity levels.

This principle is implemented via Policy PP-1056, *Roles, Responsibilities, Training, and Qualification*, and the site Policy PP-1060A, *Quality Assurance Program*.

### 5.3.3 Competence Commensurate with Responsibilities

Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities. This principle is implemented via Policy PP-1056, *Roles, Responsibilities, Training, and Qualification*, and the ISMS implementing procedures PP-1056A, *Salaried Position Descriptions* and PP-1056B, *Training Programs*.

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### 5.3.4 Balanced Priorities

Resources shall be effectively allocated to address safety, programmatic, and operational considerations. Protecting the public, the workers, and the environment shall be a priority whenever activities are planned and performed. This principle is implemented via Policy PP-1057, *Defining and Prioritizing Exit Project Work*, and the site's PP-1057B, *Risk-Based Prioritization of Work*.

### 5.3.5 Identification of Safety Standards and Requirements

Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established which, if properly implemented, will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences. This is implemented via site policy PP-1058, *Identifying and Using Exit Project Standards and Requirements*, and the site policy PP-1058A, *S/RID Development and Approval Procedure*.

### 5.3.6 Hazard Controls Tailored to the Work Being Performed

Administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work being performed and associated hazards. This principle is implemented via site policy PP-1059, *Managing Exit Project Work and Hazards*, the site's MD-10286, *Mound Safety & Hygiene Manual*, PP-1059A, *Integrated Work Control Program*, PP-1059B, *Analysis and Control of Hazards*, and PP-1059C, *Authorization Basis Manual of Practices*.

### 5.3.7 Operations Authorization

The conditions and requirements to be satisfied for operations to be initiated and conducted shall be clearly established and agreed-upon. This principle is implemented by the site procedure PP-1059E, *Startup and Restart of Nuclear Facilities* and MD-10503, *Isotope Power Systems Work Control System for Facility Modification Project*. Additionally, Authorization Agreements (AAs) have been developed for the site's Category 2 Nuclear Facilities, Buildings SW/R and T. The AAs define the authorized scope of work in these facilities, the basis for DOE's approval and the Requirements and Conditions under which the facilities operations are authorized.

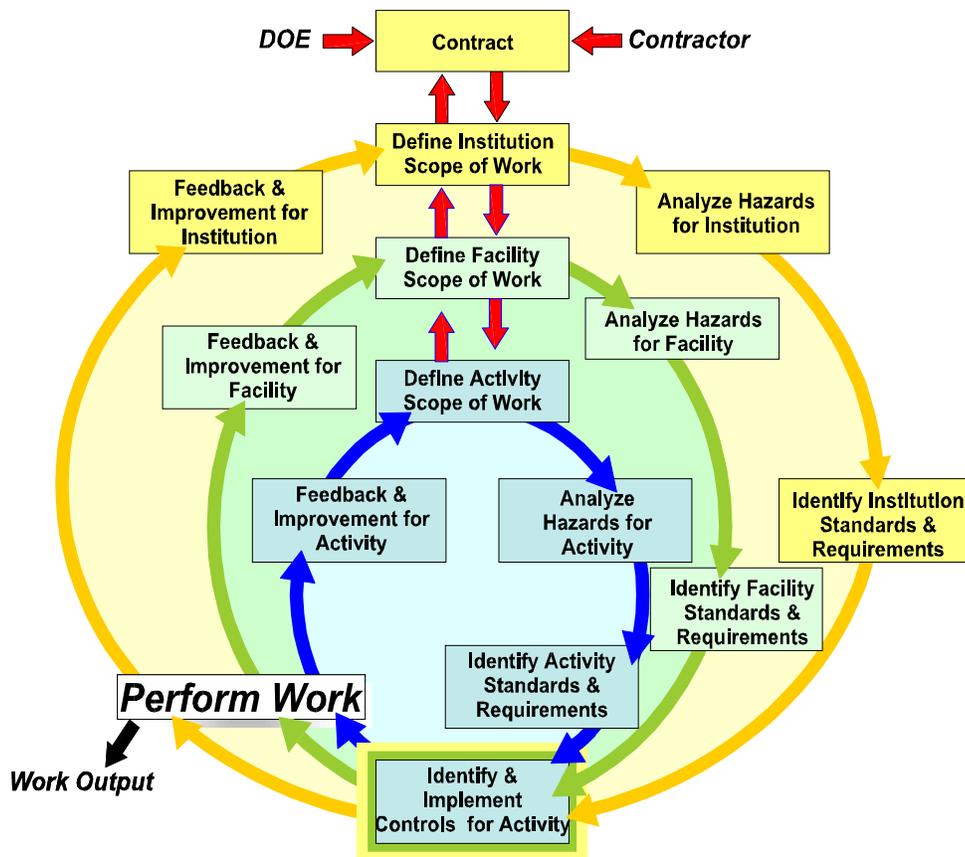
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## 5.4 Core Functions

The ISMS Core Functions are integrated vertically throughout all levels of the organization, including site, facility and activity, as shown by the vertical arrows in Figure 3.

**FIGURE 3 — ISMS Core Functions**



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### 5.4.1 Define the Scope of Work

Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated. The primary document defining the Exit Project's scope of work is the validated Baseline. The Baseline translates the DOE mission into discrete project activities that are further defined in activity-specific work packages developed in accordance with policy PP-1057, *Defining and Prioritizing Exit Project Work*, and PP-1059A, *Integrated Work Control Program*.

### 5.4.2 Analyze the Hazards

Hazards associated with the work are identified, analyzed, and categorized in accordance with the site's MD-10286, *Mound Safety & Hygiene Manual*, and policy PP-1059, *Managing Exit Project Work and Hazards*.

### 5.4.3 Develop and Implement Hazard Controls

Applicable standards and requirements are identified and agreed-upon, controls to prevent/mitigate hazards are identified, the safety envelope is established, and controls are implemented. This function is implemented through the use of procedures addressing the analysis and control of hazards PP-1059A, *Integrated Work Control Program*, and MD-10286, *Mound Safety & Hygiene Manual*, and PP-1059C, *Authorization Basis Manual of Practices*.

### 5.4.4 Perform Work within Controls

Readiness is confirmed and work is performed safely. This function is implemented via site policy PP-1059, *Managing Exit Project Work and Hazards*, and the following procedures, PP-1059B, *Analysis and Control of Hazards*, and PP-1059E, *Startup and Restart of Nuclear Facilities*.

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### 5.4.5 Provide Feedback and Continuous Improvement

“Feedback and continuous improvement” includes processes by which opportunities for operations improvement are identified and actions are taken to improve operations at the site, facility, and activity levels.

The site or institutional level involves general site operations, including the operating contract, site-level policies and procedures, project control systems, and other general management functions.

The second level, or facility level, includes operations within a specific building or project.

Lastly, the lowest level of feedback and continuous improvement occurs at the activity level where personnel are actively engaged in complex and hazardous work.

The following discussion describes the site’s feedback and continuous improvement mechanisms at each level.

#### **Institutional Site Level Mechanisms**

Feedback and continuous improvement mechanisms flow from requirements of Exit Project Contract DE-AC24-970H20044, and site policies and procedures.

Feedback is actively provided and improvements are identified and incorporated into the contract through the following mechanisms:

**Project Controls System** provides for continuing input originating through operations experience and newly identified conditions as work proceeds with environmental restoration; decontamination and demolition or transition to private use; and the management and disposal of resulting waste offsite.

This input is compared and evaluated against a baseline contract scope, cost, and schedule, which has been validated by the U. S. Army Corps of Engineers. When conditions result in potential changes to work scope or schedule, Baseline Change Proposals are developed and approved by a formal change control process.

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5.4.5 Provide Feedback and Continuous Improvement (Continued)

### **Institutional Site Level Mechanisms (Continued)**

**Standards/Requirements Identification Documents (S/RIDS)** identify laws, regulations, and DOE directives applicable to Exit Project Work. Lists A & B were developed from these S/RIDS and incorporated into the contract. The S/RIDS are routinely re-evaluated and revised, as required, by the identification of new and revised applicable requirements.

Feedback and improvement processes are established by formal Policies and Procedures, including:

PP-1060, *Reporting, Measurement, and Continuous Improvement of Exit Project Performance*

PP-1060A, *Quality Assurance Program*

PP-1060B, *Price-Anderson Compliance Program*

PP-1060C, *Self-Assessment and Corrective Action Program*

PP-1060D, *Occurrence Reporting and Processing of Operations Information Program*

PP-1060E, *Lessons Learned Program*

These policies and procedures provide for management of Exit Project lessons learned and site self- and independent assessment programs, and emphasize the formal identification, tracking, and effective completion of corrective actions to realize ES&H and operational improvements.

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### 5.4.5 Provide Feedback and Continuous Improvement (Continued)

#### Facility Level Mechanisms

Feedback and improvement processes at the facility level are managed by cognizant project, building, and facility managers. Further, more formal mechanisms are required for feedback and improvement within site nuclear facilities.

These mechanisms operate under ISMS Implementing Policy, PP-1059C, *Authorization Basis Manual of Practices*; and facility-specific documents (SARs, BIOs) and procedures, and USQ processes which have been developed for each site nuclear facility. As changes are made to facility operations, the USQ process is used to develop information for developing the annual update to the authorization basis.

Feedback on facility-level procedures is solicited from employees on a regular basis. As problems or opportunities for improvement are noted in procedures, employees inform their supervisor who initiate revisions to the procedures.

#### Activity Level Mechanisms

The site ISMS includes overlapping mechanisms, which ensure continual worker feedback and opportunities to identify operational and ES&H improvements during the work planning, execution, and oversight processes. At the activity level, mechanisms implemented to provide (proactive and preventive) identification of improvement opportunities include:

**Integrated Work Control Program:** PP-1059A, *Integrated Work Control Program*, provides the necessary consistency for work planning and worker involvement activities.

**Core Team Concept:** Much of the work performed as part of the Exit Project occurs utilizing the Core Team Concept. Core work teams, including subject matter experts, involved workers, and supervisors, are assigned and inclusively plan, perform, and evaluate scopes of work that are defined in the Exit Project Baseline as well as emergent maintenance work. The core team is designed to involve the workers and the other supporting disciplines in the identification of hazards and the development of hazard control mechanisms.

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### 5.4.5 Provide Feedback and Continuous Improvement (Continued)

#### **Activity Level Mechanisms (Continued)**

**Post-Job Reviews:** Post-Job review sessions, for the purpose of developing lessons learned, are conducted following selected complex and hazardous work to identify what went well and also any problems that were encountered during the planning and conduct of work. Then, these lessons learned are applied to future jobs of a similar nature and are communicated to others for use in their areas.

**Stop Work Policy:** All employees have the right and responsibility to stop work they view unsafe without fear of reprisal. When work is stopped to address safety concerns, the improvements are incorporated into the work planning documents and the event is evaluated for potential formal lessons learned.

**Employee Concerns Program:** Another mechanism, which enables and facilitates the input of employees, is the Employee Concerns Program. This Program allows the employee to communicate operational, ethical, or ES&H concerns to management. It also includes the responsibility for management to investigate and follow-up on any concern submitted through the Program.

**Local Safety Teams:** Local Safety Teams (LSTs) have been instituted within each project with an assigned leader and membership. The teams meet regularly to identify local safety issues and concerns, as well as to develop solutions. Problems beyond the control the LSTs are elevated to the Safety Impact organization and may be communicated to the Safety Impact Resource Panel for resolution. The Site Manager and the DOE-MEMP Project Director are members of the Resource Panel.

#### **Summary**

Feedback and continuous improvement occurs at all levels and across all levels on a regular basis. Frequent communications are provided by a number of vehicles, including the site's intranet, which includes an ISMS page and a searchable lessons learned database. Other means of communication include a daily Mound News e-mail distribution, LST meeting notes provided to LST Leaders, and hard copies of Lessons Learned posted at various locations throughout the site.

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### 5.5 Implementation

The strategy for implementing the ISMS is through the use of site-wide programs. These site-wide programs meet the Department's and BWXTO's shared objective, principles, and functions for tailoring requirements to accomplish specific work at specific facilities. Figure 4 illustrates how the various BWXTO programs and procedures support implementation of each of the five ISMS Core Functions.

Supporting the implementation of the Core Functions through the use of policies and procedures is the BWXTO Procedures Hierarchy (depicted in Figure 5). Procedures are the primary mechanisms for implementing the objective, principles, and functions of the ISMS. Figure 5 illustrates the flow down of requirements to activity level work control documents.

BWXTO's worker safety program ensures safety is integrated into all aspects of the work through the company level policies and procedures. Written guidance and requirements calling for hazard analysis and a hierarchy of controls, i.e., engineering, administrative, and personal protection equipment, are shown flowing from site-wide programs into facility specific activities/tasks.

Appropriate application (tailoring/ graded approach) of these controls is determined through the process of hazard analysis followed by management decisions using site-wide program guidance.

At the facility/activity level, implementation of worker safety programs is tailored to the activity/work, but always in a manner consistent with site-wide programs, such as:

MD-10286, *Mound Safety & Hygiene Manual*, (e.g., Work Permits, Job Safety Hazards Analysis)

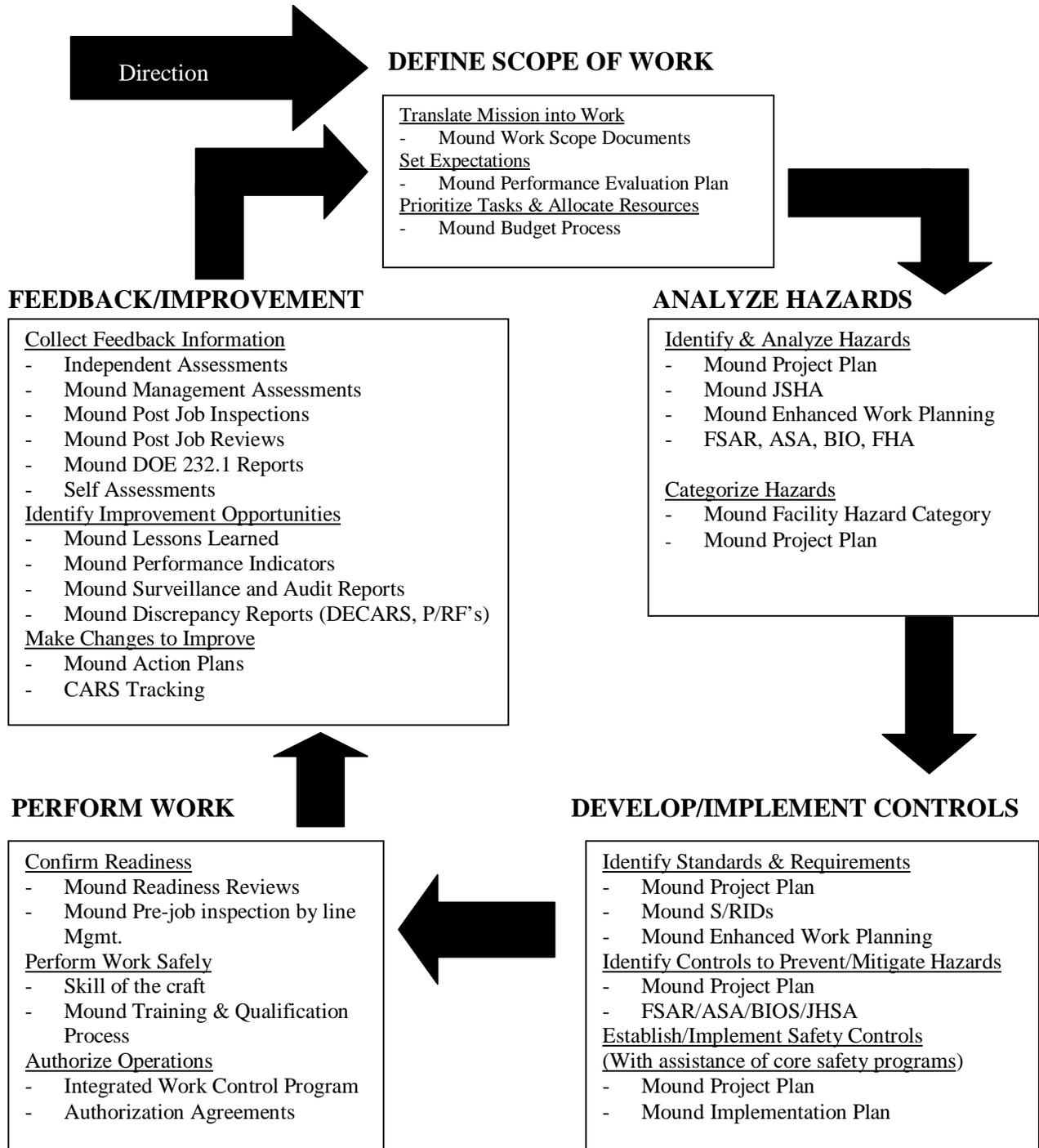
PP-1059D, *Conduct of Operations Manual* (e.g., Control of Equipment and System Status, Procedure Verification and Validation)

PP-1059A, *Integrated Work Control Program*.

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**FIGURE 4 — Mound Integrated Safety Management Process**



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**FIGURE 5 — Mound Document Hierarchy**

<b>DOCUMENT HIERARCHY</b>	
<b>LEVEL 1 Laws/Regulations (Imposed by Outside Authority)</b>	Federal, state, and local laws and regulations Corporate Orders and mandates Federal Facilities Agreement (FFA) Records of Decision Action Memorandums
<b>LEVEL 2 Agreements</b>	BWXTO Contract ( Lists A and B) Mound Baseline document MOUs/BIOs/SARs/ASAs Contracts with external organizations Authorization Agreements
<b>LEVEL 3 Mound Site-Wide Documents (BWXTO Policy &amp; Guidance)</b>	Site Management Plan Mound Policy Manual Mound executive directives Site Quality Plan
<b>LEVEL 4 Organizational/ Operations Documents</b>	Quality Plans Functional Plans for Generic Work Plans Systems and Technical manuals with site-wide application Waste Management Plan Emergency Response Plan HASPs
<b>LEVEL 5 Procedural/Instructional Documents</b>	Site specific work plans Mound Policy-Procedure Manual Technical Manuals dealing with a specific task or process Standard Operating Procedures (SOP) for activity or work process
<b>LEVEL 6 Reports And Performance Indicators</b>	Documents that are a record or result of work performed Quarterly Review Reports Project Closure Reports On Scene Coordinator (OSC) Reports RCRA Closure Reports Logs/Records

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### 5.6 Responsibilities

BWXTO is organized to satisfy the Guiding Principle that **Line Management is responsible for safety**. Unambiguous lines of responsibility within BWXTO are paramount to effective safety management at Mound. The BWXTO organization, as shown in Figure 6, is divided into two Management roles —Direct Projects and Support Services.

Project Managers have the primary responsibility for safely operating facilities and conducting activities. Support Services Managers perform in advisory and service roles to Project Managers. However, some Support Services Managers (e.g., Health and Safety), also perform operations and have primary responsibility for the safety of those operations.

**Line Management is responsible for ensuring that work is performed safely, in a manner that ensures adequate protection for employees, the public, and the environment.**

Line management includes those contractor and subcontractor employees managing or supervising employees performing work. However, the employees with their “hands on the tools” form the first line of defense and, given the appropriate training and procedures, are responsible for their own safety during the performance of work.

Additionally, everyone shares responsibility for the safety of their fellow employees. Any employee may exercise “Stop Work” authority in accordance with the company Policy PP-7752, *Stop Work Policy*, without fear of reprisal when unsafe conditions are observed.

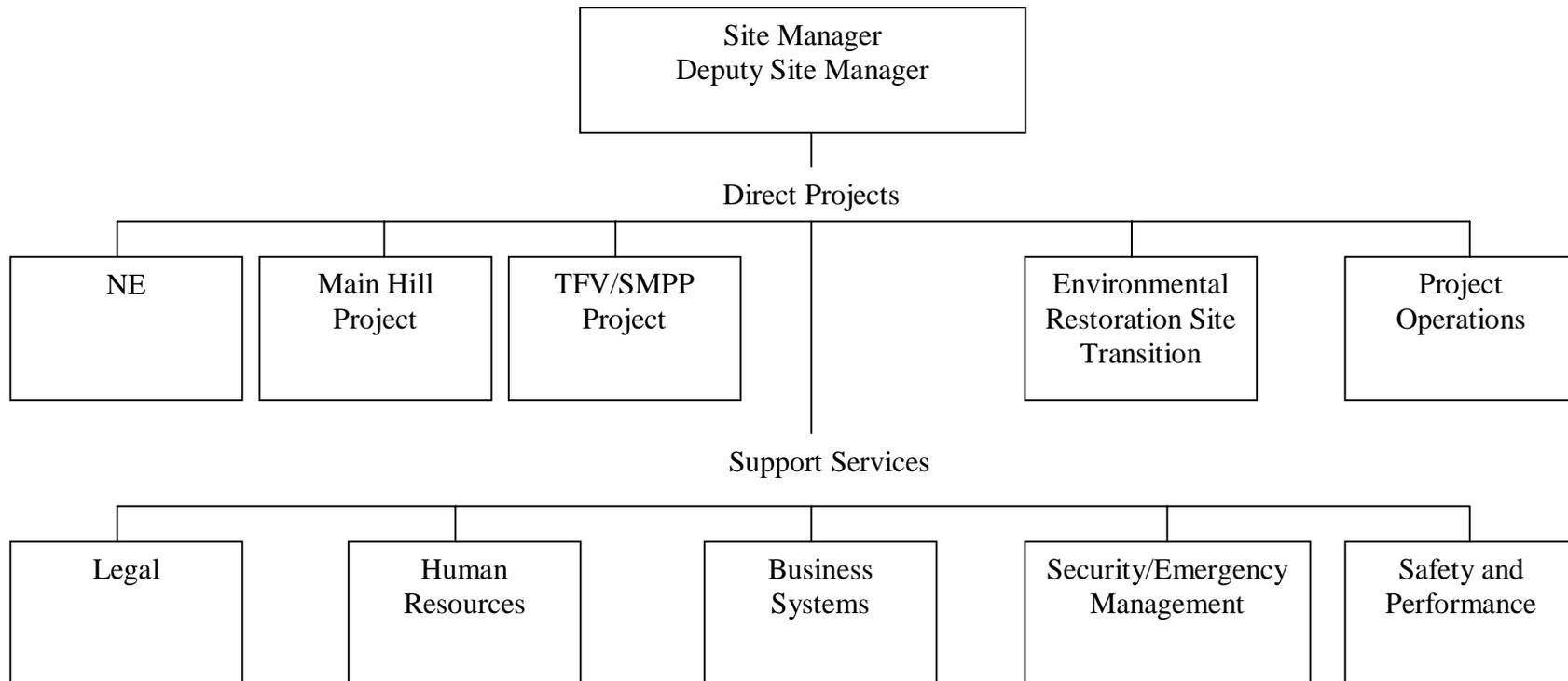
Clear and unambiguous lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels. Quality Assurance plans developed in accordance with BWXTO Procedure PP-1060A, *Quality Assurance Program* document the organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing work.

BWXTO’s ISMS organizational description document is sufficiently detailed to ensure the three guiding principles relating to responsibilities are implemented. This document clearly defines roles and responsibilities by specifying how functions are to be carried out and identifying who has the responsibility and authority to carry out those functions.

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**FIGURE 6 – BWXTO Organizational Structure**



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### **5.7 Mechanisms**

Mechanisms are the means by which the safety management functions are implemented and performed. BWXTO policies and procedures provide management's expectations for safety and define the principal mechanisms for implementing the ISMS. BWXTO is committed to operate by approved procedures. The Procedures Management System ensures these policies and procedures provide a vehicle to tailor the activity/work and hazards.

The remainder of this document addresses the specific mechanisms used by BWXTO to perform work safely. Documents that prescribe mechanisms to accomplish the Safety Management Functions in accordance with the seven Guiding Principles are presented in Section 7.

## **6. ENVIRONMENTAL SYSTEMS**

BWXTO is committed to protecting the environment, as well as the workers and the public as outlined in the company's environmental policy statement shown below.

### **6.1 Environmental Policy Statement**

BWXTO is committed to completing the Mound Exit Project in accordance with sound environmental practices. To ensure fulfillment of that commitment, the management, employees, and subcontractors of BWXTO will adhere to the following principles:

- Company employees will be responsible stewards of the environment.
- Company activities, and those of its subcontractors, will be conducted in compliance with applicable federal, state, and local environmental regulations, DOE Orders, and Company procedures.
- Improvement and pollution prevention opportunities will be sought out and implemented on a continuous basis.
- Aggressive environmental remediation objectives will be set and met.
- Environmental performance will be monitored by senior management.
- Environmental professionals employed by BWXTO will serve willingly as mentors for area businesses and municipalities.
- Information regarding the site's environmental performance will be routinely communicated to stakeholders.

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### 6.1 Environmental Policy Statement (Continued)

The BWXTO Environmental Safety Program hierarchy is illustrated in Figure 7.

BWXTO established a subproject titled “Environmental Compliance and Analytical Services (EC&AS)” for the purpose of providing analytical and environmental compliance support to the Mound Exit Project. The EC&AS groups responsible for environmental systems include Analytical Services and Compliance Support.

These groups conduct monitoring of site effluents and documentation of compliance with environmental regulations, and work closely with line management to ensure project plans are reviewed for environmental compliance.

The Analytical Services Group performs effluent and environmental monitoring, gamma spectroscopy, soil screening and count lab support. Analytical Services supervisors are responsible for the safe operation and procedural compliance of on-site laboratories and proper operation of field-deployed sampling and monitoring equipment.

The Effluent and Environmental unit is responsible for the collection and analysis of samples required to demonstrate compliance with applicable effluent and environmental regulations. Results are used to monitor compliance with applicable requirements.

The Gamma Spectroscopy and Soil Screening unit provides rapid assay of soils, gamma spectroscopic analysis, and validation of gamma spectroscopic analyses from other laboratories.

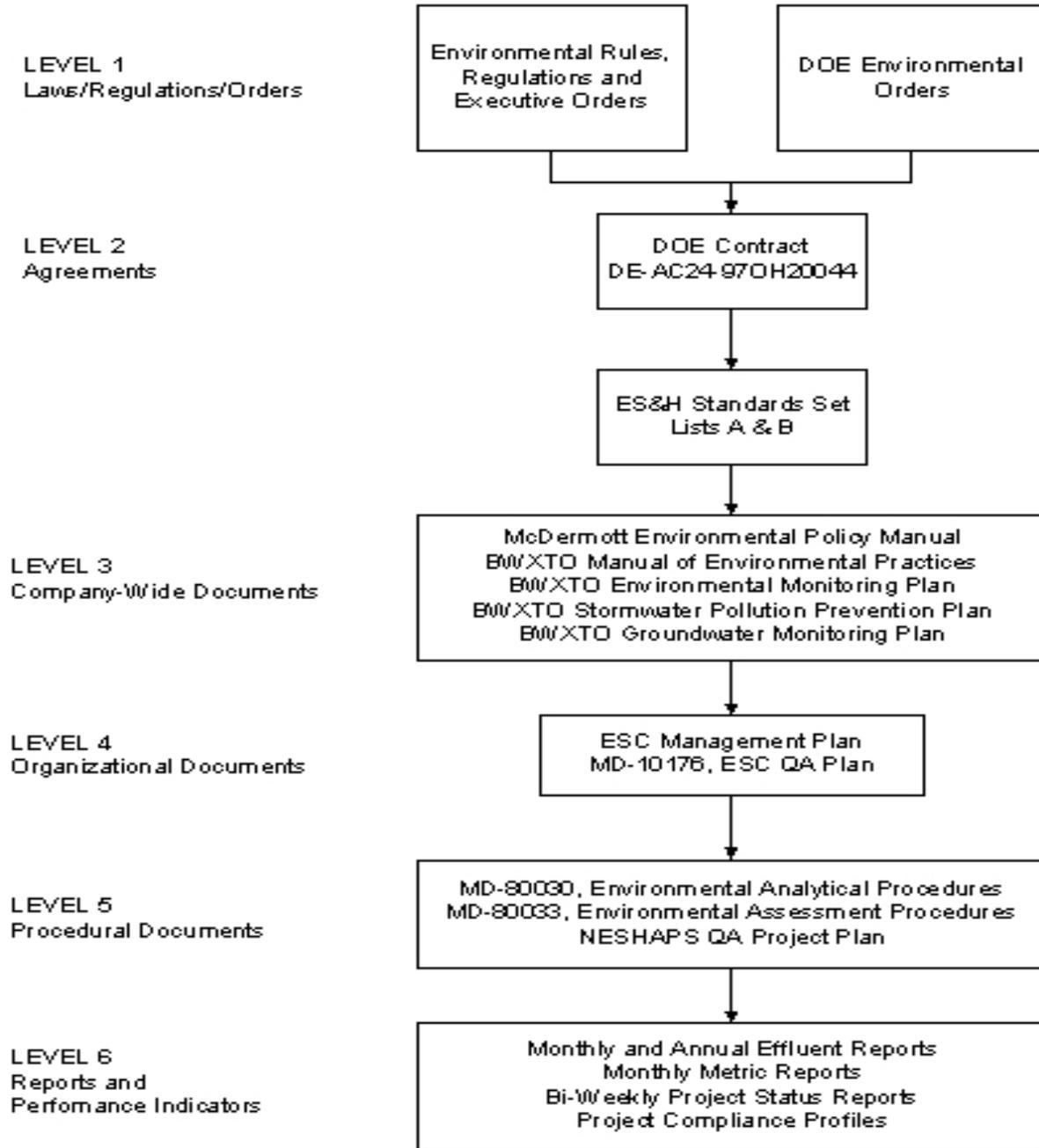
The Compliance Support Group is responsible for demonstrating compliance with applicable portions of the:

- Clean Water Act (CWA)
- Clean Air Act (CAA)
- Comprehensive Environmental Response
- Compensation and Liability Act (CERCLA)
- Emergency Planning and Community Right-to-Know Act (EPCRA)
- National Environmental Policy Act (NEPA)
- Safe Drinking Water Act (SDWA)

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**FIGURE 7 – BWXTO Environmental Safety Program**



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### 6.1 Environmental Policy Statement (Continued)

The Compliance Support staff provides support to Project Managers to ensure compliance with the requirements of these statutes and applicable DOE Orders.

## 7. BWXTO SAFETY MANAGEMENT SYSTEM MECHANISMS

This section shows **how** Environment, Safety, and Health programs are incorporated into the work and links the Department of Energy's safety objective, principles, and functions with the BWXTO implementing strategy and responsibilities discussed earlier.

The format of each following section consists of a brief discussion of the mechanisms, followed by a table of references to the primary company-level documents that prescribe the mechanisms. A "5 X 7" matrix illustrating how the implementing mechanisms align with the ISMS Guiding Principles and Core Functions is provided in Appendix A. Appendix C provides a summary listing of the BWXTO documents that implement and support the ISMS.

**NOTE:** It is not the intent of this section to list every BWXTO procedure containing mechanisms that implement ISMS elements. Employees may obtain a comprehensive listing of site procedures from Document Control.

### 7.1 Guiding Principles 1, 2, and 3

The first three guiding principles relate to responsibilities intrinsic in all five core functions:

- Line Management Responsibility for Safety
- Clear Roles and Responsibilities
- Competence Commensurate with Responsibilities

These Guiding Principles are implemented through overarching ISMS policy PP-1056, *Roles, Responsibilities, Training and Qualifications*, and its implementing procedures as discussed below.

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### 7.1 Guiding Principles 1, 2, and 3 (Continued)

BWXTO's management structure is organized based upon a project management approach. BWXTO is organized to guarantee that Line Management is responsible for safety. Unambiguous lines of responsibility are paramount to effective safety management at Mound.

The BWXTO organization, as shown in Figure 6, is divided into two Management roles: Direct Projects and Support Services. Project Managers are responsible and accountable for the safety of all work at the site involving industrial and radiological hazards associated with the construction, maintenance, remediation, decontamination, safe shutdown and demolition of facilities and/or soils.

Project Managers and Support Services Managers are both responsible and accountable for the safety of work associated with routine operations in areas under their control, such as equipment calibration, vehicle maintenance, laboratory operations, security, fire protection, and routine sampling. Support Services Managers are responsible for providing policies and procedures for their functional areas.

BWXTO's ISMS organizational description document is sufficiently detailed to ensure the three guiding principles relating to responsibilities are implemented. This document clearly defines roles and responsibilities by specifying how functions are to be carried out and identifying who has the responsibility and authority to carry out those functions. These interrelated guiding principles help ensure the management structure has personnel who are focused on safety, understand their assignments, and are capable of carrying out the core safety management functions.

Underlying every discussion of ISMS implementation is the requirement that employees are competent to carry out the responsibilities they are assigned. BWXTO hires competent personnel by ensuring required education and experience requirements are specified in appropriate position descriptions and then ensures they are trained and qualified for their work assignments with formal training and qualification programs.

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### 7.1.1 Line Management Responsibility for Safety

Line Management is responsible for ensuring that work is performed safely, in a manner that ensures adequate protection for employees, the public, and the environment. Line management includes those contractor and subcontractor employees managing or supervising employees performing work, as well as the employees actually performing the work.

### 7.1.2 Clear Roles and Responsibilities

BWXTO's organizational chart illustrates the project management structure of the Mound Exit Project. Policy PP-1056, *Roles, Responsibilities, Training, and Qualification*, establishes the site requirements. Roles and responsibilities for all positions in the organization are described in Job Evaluation Description documents.

Quality Assurance plans developed in accordance with the DOE Quality Assurance rule (10 CFR 830.120) and DOE O 414.1A, Quality Assurance, document the organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing work. In addition, BWXTO's Conduct of Operations program establishes requirements addressing this principle.

Clear and unambiguous lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels. However, the employees with their "hands on the tools" form the first line of defense and, given the appropriate training and procedures, are responsible for their own safety during the performance of work. Additionally, everyone shares responsibility for the safety of their fellow employees. Any employee may exercise "Stop Work" authority in accordance with company Policy PP-7752, *Stop Work Policy*, without fear of reprisal when unsafe conditions are observed.

PP-1056	<i>Roles, Responsibilities, Training, and Qualifications</i>
PP-1056C	<i>Building and Facility Managers' Roles, Responsibilities, Training, and Qualifications</i>
PP-1059D	<i>Conduct of Operations</i>
PP-1060A	<i>Quality Assurance Program</i>
PP-7752	<i>Stop Work Policy</i>

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### 7.1.3 Competence Commensurate with Responsibilities

The ISMS description addresses this third guiding principle by requiring the identification of the qualifications required for specific positions. BWXTO ensures personnel possess the experience, knowledge, skills, and abilities necessary to discharge their responsibilities through a combination of position descriptions and Training and Qualification programs as described in company policy PP-1056, *Roles, Responsibilities, Training, and Qualification*. Position descriptions are used to identify prerequisite qualifications required before hiring, transferring, or promoting personnel into specific positions.

Training and Qualification programs developed in accordance with PP-1056B, *Training Program*, ensure personnel understand and are appropriately trained to perform selected activities.

As described in company policy PP-7109, *Employee Retention Policy*, BWXTO has implemented a retention plan designed to ensure competency is retained in a controlled manner throughout the Exit Project.

PP-1056	<i>Roles, Responsibilities, Training, and Qualifications</i>
PP-1056B	<i>Training Program</i>
PP-7109	<i>Employee Retention Policy</i>
PP-1056C	<i>Building and Facility Managers' Roles, Responsibilities, Training, and Qualification</i>

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### 7.2 Core Function 1, Define Scope Of Work, And Guiding Principle 4, Balanced Priorities

This core function and guiding principle are implemented through overarching ISMS policy PP-1057, *Defining and Prioritizing Exit Project Work*, and its implementing procedures as discussed below.

Accurately defining the work is vital to the timely and successful completion of the Mound Exit Project. The Project has been designed to address hazards as priorities in accordance with their magnitude and possible consequences. Schedules for all major Exit Project activities are included in the Exit Project Baseline.

The scope of work associated with the Exit Project is characterized by shutdown of Site facilities; cleanup of residual contamination resulting from operations at the Site; demolition of buildings unsuitable for transfer to private ownership; transfer of buildings and land to the City of Miamisburg, and D&D of radiological and nuclear operations areas.

BWXTO utilized the DOE-Ohio Strategic Plan to develop the Mound Exit Project baseline and used a risk prioritization process to determine the annual work scopes to be executed with the available annual funding in order to achieve the most accelerated site exit. This DOE-validated process ensures that significant risks and safety hazards are identified, reviewed, and factored into funding decisions. Project Plans derived from the Baseline are translated into work control documents with clearly defined scopes of work.

Before starting work on any of these activities, the work is defined and translated from the baseline into discrete activities that facility personnel understand and can adequately control. Specific tasks, operations, or work steps are identified and prioritized. BWXTO has identified and prioritized work in its Project Baseline and allocates resources to support the Exit Plan.

A well-defined scope of work is critical to the success of an ISMS because:

- It sets the stage for the scope and depth of hazards identification/analysis
- It is the foundation for the budget formulation/allocation process
- It is the primary factor in establishing expectations and accountability

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### 7.2 Core Function 1, Define Scope Of Work, And Guiding Principle 4, Balanced Priorities (Continued)

BWXTO ensures a proper balance among competing priorities of the organization, e.g., safety, budget, schedule, quality. In many cases there is a need to integrate into program work scopes those activities, such as fire protection, radiation protection, training, etc., that support or interface with other work activities.

Each organization reconciles internal or external conflicts (i.e.: over schedule, resource allocation, etc.) and provides change control. Typically, these activities are accomplished through senior project management review. In addition, a Risk-Based Prioritization Methodology is used to provide prioritized listings of activities in support of budget preparation activities, budget reductions, and resource-constrained scheduling activities.

BWXTO employs a variety of options and tradeoffs to promote the safe completion of work, including negotiating work scope, establishing performance objectives, identifying resources, selecting personnel, and adjusting schedules. The goal is to define work and allocate resources so that work is done safely and contributes to accomplishment of the mission.

The Project Controls System (PP-1057C) is the complete source of guidance regarding the application of project controls for the BWXTO Exit Plan, including Baseline development, performance measures, analysis and reporting, and Baseline change control.

MD-10502, *General Work Plan for Building D&D or Decontamination and Transition at the Mound Site*, describes the process for defining the scope of work, translating missions into work, setting expectations, prioritizing tasks, allocating resources and authorization, and controlling project work. Activities are prioritized using PP-1057B, *Risk-Based Prioritization of Work*.

MD-50000, *Maintenance Work Order and Material Processing Manual*, MD-10498, *Nuclear Facility Work Authorization Package*, and MD-10503, *Isotope Power Systems Work Control System for Facility Modification Project*, describe similar processes for Maintenance and nuclear facility project work. PP-1059A, *Integrated Work Control Program*, provides a single site process for the development of field work control documents.

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### 7.2 Core Function 1, Define Scope Of Work, And Guiding Principle 4, Balanced Priorities (Continued)

<b>Mound Exit Project Baseline</b>	
PP-1057	<i>Defining and Prioritizing Exit Project Work</i>
PP-1057A	<i>Defining Work Scopes</i>
PP-1057B	<i>Risk-Based Prioritization of Work</i>
PP-1057C	<i>Project Controls System</i>
MD-10502	<i>General Work Plan for Facility D&amp;D or Decontamination and Transition at the Mound Site</i>
MD-50000	<i>Maintenance Work Order and Material Processing</i>
MD-10498	<i>Nuclear Facility Work Authorization Package</i>
MD-10503	<i>Isotope Power Systems Work Control System for Facility Modification Project</i>
PP-1059A	<i>Integrated Work Control Program</i>

### 7.3 Core Function 2, Analyze Hazards

This core function is implemented through overarching ISMS policy PP-1059, *Managing Exit Project Work and Hazards*, and its implementing procedures as discussed below.

The first step in the hazards analysis process is to identify, analyze, and categorize hazards associated with the work. Hazards are identified in accordance with the hazard analyses processes defined in PP-1059B, *Analysis and Control of Hazards*. Authorization Basis Documents, such as Bases for Interim Operations (BIOs), Safety Analysis Reports (SARs), Auditable Safety Analyses (ASAs), Health and Safety Plans (HASPs), and Job Safety and Health Analyses (JSHAs) document the analysis of hazards associated with defined scopes of work and provide the hazard control mechanisms required to mitigate the identified hazards.

Project Managers are responsible for analyzing the hazards associated with their projects, including activities within facilities, field work, and facility maintenance, modifications, decontamination, and demolition. Employees and supervisors are involved in this process early in the work definition phase.

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### 7.3 Core Function 2, Analyze Hazards (Continued)

Multidisciplinary teams perform the hazards assessments by a combination of record reviews, personnel interviews, and physical walkdowns of the work areas. Subject matter experts in the analysis of environment, safety, and health impacts are integrated into the projects, and work closely with those responsible for the analysis of the work processes.

When the complexity of the work and/or hazards are beyond the expertise of the assigned safety professional, personnel with the appropriate expertise are assigned to support the project team. Worker involvement in hazards analysis ensures those performing the work are aware of the hazards and the purposes of the hazard control mechanisms.

PP-1059C, *Authorization Basis Manual of Practices*, specifies how to tailor the type and level of Safety Documentation to the hazards, and establishes approval authorities. PP-1059C also implements the change control process for nuclear facilities and establishes the Unreviewed Safety Question process which is further defined in MD-10414, *Safety Basis Methodology*.

At the activity/task level, common industrial hazards to the worker during operations and construction are focused more specifically on Job Safety Hazard Analyses (JSHAs) as described in MD-10286, *Mound Safety & Hygiene Manual*.

Radiological controls are addressed by ISMS implementing procedure PP-1059F, *Radiological Controls*.

PP-1059	<i>Managing Exit Project Work and Hazards</i>
PP-1059B	<i>Analysis and Control of Hazards</i>
PP-1059C	<i>Authorization Basis Manual of Practices</i>
PP-1059F	<i>ISMS Implementing Procedure, Radiological Controls</i>
MD-10286	<i>Mound Safety &amp; Hygiene Manual</i>
<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> MD-10414	<i>Safety Basis Methodology</i>
MD-10507	<i>Hazard Identification and Control</i>

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### 7.4 Core Function 3, Develop/Implement Controls; Guiding Principle 5, Identification Of Safety Standards And Requirements; And Guiding Principle 6 Hazard Controls Tailored To Work Being Performed

This core function and guiding principle are implemented through overarching ISMS policy PP-1058, *Identifying and Using Exit Project Standards and Requirements*, and its implementing procedures as discussed below.

The identification of hazards sets the stage for further work planning. The Mound approach involves:

- Identification of Safety Standards and Requirements
- Flowdown of Requirements Through Policies and Procedures
- Development and Implementation of Hazard Controls
- Hazard Controls Tailored to Work Being Performed
- Worker Involvement

After the hazards have been identified and before work is performed, appropriate controls are defined from an applicable set of safety standards and requirements.

Applicable standards and the professional technical judgment of Subject Matter Experts (i.e., Certified Safety Professionals, Certified Health Physicists, and Certified Industrial Hygienists) are used to determine the appropriate level of controls that must be put in place. Worker involvement in this Function is particularly important.

Appropriate engineering, administrative, or personal protective equipment (PPE) controls and safety requirements are applied to work activities by:

- Identifying applicable task-specific standards from the sitewide set of standards and requirements
- Identifying and tailoring controls to prevent/mitigate specific hazards, establishing boundaries for safe operations (i.e., establishing a safety envelope)
- Implementing and maintaining the integrity of controls, e.g., FSAR Operational Safety Requirements and BIO Operational Controls
- Implementing and maintaining configuration of the Mound ISMS documentation to preclude inadvertent deletion or changes to this critical document.

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### 7.4 **Core Function 3, Develop/Implement Controls; Guiding Principle 5, Identification Of Safety Standards And Requirements; And Guiding Principle 6 Hazard Controls Tailored To Work Being Performed (Continued)**

Engineering controls are the first choice of mitigation, since eliminating the hazards altogether provides the best protection. If engineering controls are unfeasible, administrative controls provide the next best level of protection. PPE is used when the hazards cannot be effectively eliminated or mitigated through the use of engineering and/or administrative controls.

As described in company policy PP-1049, *Integrated Safety Management*, workers are included in the planning of hazardous work, including hazards analysis, development and implementation of hazard controls and pre job briefings. Any safety problems are reported by workers to management.

Where employees have concerns about the safety of a job, they exercise their stop work authority in accordance with company policy PP-7752, *Stop Work Policy*, and may also raise concerns without fear of reprisal as described in company policy PP-7138, *Open Door Policy/Appeals Process for Employees*.

Additionally, the Employee Concerns Program, the MSR process, and Radiological Awareness Reports provide means for employees to document safety concerns. Worker involvement in the development and implementation of hazard controls increases the effectiveness and appropriate tailoring to the work being performed.

PP-1059C, *Authorization Basis Manual of Practices*, and MD-10507, *Hazard Identification and Control*, describe the processes used for hazard identification, hazard analysis, and selecting hazard controls.

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### 7.4 Core Function 3, Develop/Implement Controls; Guiding Principle 5, Identification Of Safety Standards And Requirements; And Guiding Principle 6 Hazard Controls Tailored To Work Being Performed (Continued)

The BWXTO document hierarchy, depicted in Figure 5, provides the mechanisms to ensure controls are in place at appropriate levels of the company and ensures worker safety is integrated into all levels of our business.

PP-1049	<i>Integrated Safety Management System</i>
PP-1058	<i>Identifying and Using Exit Project Standards and Requirements</i>
PP-1058A	<i>S/RID Development and Approval</i>
PP-1058B	<i>Document Hierarchy</i>
PP-1058C	<i>Exit Project Directives System</i>
PP-1059C	<i>Authorization Basis Manual of Practices</i>
PP-7752	<i>Stop Work Policy</i>
PP-7138	<i>Open Door Policy/Appeals Process for Employees.</i>
MD-10286	<i>Mound Safety &amp; Hygiene Manual</i>
MD-10507	<i>Hazard Identification and Control</i>

### 7.5 Core Function 4, Perform Work, And Guiding Principle 7, Operations Authorization

This core function and guiding principle are implemented through overarching ISMS Policy PP-1059, *Managing Exit Project Work and Hazards*, and its implementing procedures as discussed below.

The BWXTO ISMS requires that all operations be formally authorized prior to initiation by either DOE or the cognizant BWXTO Managers when operation authorization has been delegated to BWXTO by DOE. In addition to operations authorization, the system requires all work be performed within controls.

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### 7.5 Core Function 4, Perform Work, And Guiding Principle 7, Operations Authorization (Continued)

BWXTO confirms and documents readiness to implement safety and environmental controls as well as technical and quality requirements BEFORE starting work in accordance with PP-1059E, *Startup and Restart of Nuclear Facilities*. After work begins, it is performed in accordance with those safety controls.

Readiness reviews are conducted to confirm adequate preparation prior to authorizing the performance of work at the facility, project, or activity level. The formality and rigor of the review process and the extent of documentation and level of authority for agreement is based on the hazard and complexity of the work being performed. This process ensures programs addressing all applicable functional areas are adequately implemented to support safe performance of the work.

BWXTO's written policies, manuals, and procedures ensure safety controls are integrated into work plans. Individual work plans, operating procedures, and maintenance procedures implement safety controls at the task level. Pre-job briefings, as described in company Policy PP-1045, *Pre-Job Briefings and Updates*, and job walkdowns ensure workers understand the controls to be applied and allow an opportunity to correct hazardous conditions not previously noted.

Work is performed in the field using an approved, written work control document. Maintenance work is initiated by a Maintenance Service Request (MSR) as described in MD-50000, *Maintenance Work Order & Material Processing*. Project related work is typically controlled by a Job Specific Work Plan or Facility Specific Work Plan as described in MD-10502, *General Work Plan for Building D&D or Decontamination and Transition at the Mound Site*.

Work in nuclear facilities is controlled by either MD-10498, *Nuclear Facilities Work Authorization Package*, or MD-10503, *Isotope Power Systems Work Control System for Facility Modification Project*. In support of each of these procedures, activity-specific work packages are planned and approved in accordance with PP-1059A, *Integrated Work Control Program*.

Routine operations are performed using approved procedures prepared in accordance with company policy PP-1058, *Identifying and Using Exit Project Standards and Requirements*, and PP-1058C, *Exit Project Directives System*. Procedural compliance is emphasized in Policy PP-1058.

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### 7.5 Core Function 4, Perform Work, And Guiding Principle 7, Operations Authorization (Continued)

Personnel assigned responsibility for completing work are instructed on the hazards and the engineered and administrative controls, standards, and procedures used to control the hazards. Personnel performing the work are provided with verbal and/or written instructions that effectively integrate the necessary controls. Additionally, appropriate mechanisms are in place to authorize the performance of the work, including a process that confirms the readiness to perform the work before it is started.

PP-1059D, *Conduct of Operations*, sets forth the BWXTO operational standards at the activity/task level for content, format and procedure approval; communication and notification; training; and shift and facility operations.

Authorization Agreements for the site's Category 2 Nuclear Facilities define the DOE-authorized scopes of work in these facilities and provides DOE's basis for approval as well as the Requirements and Conditions under which DOE's approval was granted.

PP-1045	Pre Job Briefings and Updates
PP-1058	<i>Identifying and Using Exit Project Standards and Requirements</i>
PP-1058C	<i>Exit Project Directives System</i>
PP-1059	<i>Managing Exit Project Work and Hazards</i>
PP-1059A	<i>Integrated Work Control Program</i>
PP-1059D	<i>Conduct of Operations</i>
PP-1059E	<i>Startup and Restart of Nuclear Facilities</i>
MD-10498	<i>Nuclear Facilities Work Authorization Package</i>
MD-10502	<i>General Work Plan for Building D&amp;D or Decontamination and Transition at the Mound Site</i>
MD-10503	<i>Isotope Power Systems Work Control System for Facility Modification Project</i>
MD-50000	<i>Maintenance Work Order &amp; Material Processing</i>
N/A	Authorization Agreement for SW/R Complex
N/A	Authorization Agreement for T Building

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### 7.6 Core Function 5, Feedback and Continuous Improvement

This core function is implemented through overarching ISMS policy PP-1060, *Reporting, Measurement, and Continuous Improvement of Exit Project Performance*, and its implementing procedures as discussed below.

BWXTO Performance Assessments, conducted in accordance with PP-1060C, *Self-Assessment and Corrective Action Program*, measure relative effectiveness of work (and ES&H management) processes and systems, as well as success of performance outcomes to identify opportunities for improvement. These assessments, combined with project lessons learned as described in PP-1060E, *Lessons Learned Program*, identify opportunities for continuous improvement even in those cases where the current level of performance meets current expectations or safety goals.

Recommended improvements are evaluated and are implemented when proven to be value added and/or cost effective. Safety performance is measured by line management and periodically validated by independent parties.

The Independent Assessments, Self-Assessment, and Lessons Learned Program describe the mechanisms for: collecting feedback information; identifying improvement opportunities; making changes to improve; and conducting oversight. The Independent Assessment and Self-Assessment procedures describe the primary mechanisms for feedback. The BWXTO feedback mechanism is a two-tiered system consisting of:

- [a] Self-assessment based on QA Rule 830.120, Criterion 9: *Management Assessment*, a foundation level of assessment throughout the Company with strong Line Management involvement.
- [b] Independent assessment based on QA Rule 830.120, Criterion 10, *Independent Assessment*: a consolidated, multi-disciplined, independent, company-level assessment activity, performed by the QA&A organization.

When compliance or performance weaknesses are revealed through self-assessment or independent assessment, specific corrective actions are identified, assigned to responsible management, and tracked within CARS system to closure. Project-level performance measures are also developed to track individual project safety performance and performance indicators are developed to measure the effectiveness of ISM implementation. Both processes provide an indication of both the current status and a benchmark against which improvements can be measured.

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### 7.6 Core Function 5, Feedback and Continuous Improvement (Continued)

Feedback information is also collected from the processes described in MD-10060, *Material Review Board*. Additionally, the Compliance Review Board (CRB), a cross-functional team of senior managers, evaluates the results of assessments, critiques and lessons learned for site-wide implications. The CRB also provides a mechanism for screening potential significant PAAA noncompliances in accordance with PP-1060B, *Price-Anderson Compliance Program*.

In addition to the CRB, the site's Partnership Council provides a mechanism for feedback and continuous improvement. The Council includes members from DOE's Ohio Field Office, the DOE Miamisburg Environmental Project Office, BWXTO Senior Management and officials from the site's two organized unions. The council meets weekly as a forum to identify and resolve safety issues and provides a forum for open dialogue between the employees and senior site management.

PP-1060	<i>Reporting, Measurement and Continuous Improvement of Exit Project Performance</i>
PP-1060A	<i>Quality Assurance Program</i>
PP-1060B	<i>Price-Anderson Compliance Program</i>
PP-1060C	<i>Self Assessment and Corrective Action Program</i>
PP-1060D	<i>Occurrence Reporting and Processing of Operations Information</i>
PP-1060E	<i>Lessons Learned Program</i>
MD-10346	<i>Procedures for Discrepancy Evaluation/Corrective Action Reporting Systems</i>
MD-10060	<i>Material Review Board</i>

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### **8. LAWS, REGULATIONS, STANDARDS, AND DOE DIRECTIVES**

BWXTO identified the standards and requirements applicable to the Mound contract by analyzing the hazards associated with work outlined in the Exit Project Baseline and a hazards assessment of the site. The DOE S/RID Development and Approval procedure was used to develop the lists of standards and requirements and DOE approved them as Lists A and B which were appended to the contract. Additionally, the standards and requirements are included in a set of documents known and Standards/Requirements Identification Documents (S/RIDs) which sort the specific requirements by functional areas.

#### **8.1 Laws and Regulations**

BWXTO complies with the requirements of applicable Federal, State, and local laws and regulations (including DOE regulations) unless relief is granted in writing by the appropriate regulatory agency. A listing of Applicable Laws and Regulations is included in the Contract (List A). Omission of any applicable law or regulation from the Contract does not affect BWXTO's obligation to comply with such law or regulation.

#### **8.2 Standards and DOE Directives**

BWXTO complies with the requirements of applicable DOE orders, or parts thereof, identified the contract as the List of Applicable Directives (List B).

### **9. PROCESS FOR EVALUATING AND RESOLVING NON-COMPLIANCES**

#### **9.1 Identifying Non-Compliances**

Non-compliances with requirements specified in the Contract, and applicable laws and regulations not specifically included therein, are occasionally identified during the conduct of internal and external assessments and audits.

Non-compliances are also identified by individual employees or during the conduct of critiques, inquiries, and investigations into near misses, accidents, and other occurrences. Non-compliances are documented on assessment reports, employee concern forms, Radiological Awareness Reports (RARs) or other reports, and are forwarded to the cognizant project or functional manager for evaluation.

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### 9.2 Evaluating Non-Compliances

Non-compliances with requirements can be minor or significant. Non-compliances with Nuclear Safety Rules are evaluated and reported using DOE's Noncompliance Tracking System (NTS) and/or tracked on BWXTO's Corrective Action Reporting System (CARS) database.

Non-compliances are also evaluated against the criteria of DOE O 232.1A, *Occurrence Reporting and Processing of Operations Information*, and are reported via DOE's ORPS system and/or tracked on BWXTO's Corrective Action Reporting System (CARS) database.

Waste Management and laboratory related non-compliances are recorded in the Discrepancy Evaluation/Corrective Action Reporting System (DECARS) and are evaluated by the Corrective Action Approval Board and/or the Material Review Board process.

Non-compliances with other requirements are reported to DOE and the appropriate Federal, State, or local regulatory authorities, if required, in accordance with the requirements documents, related permits, and Mound procedures.

### 9.3 Resolving Non-Compliances

Non-compliances are resolved by taking actions to correct the non-complying condition. Corrective actions fall into one of three categories; Immediate, Short Term, and Long Term.

Short and long term corrective actions are usually tracked on either BWXTO's Corrective Actions Reporting System (CARS) or Discrepancy Evaluation/Corrective Action Reporting System (DECARS).

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### 9.3 Resolving Non-Compliances (Continued)

Immediate corrective actions are designed to correct the readily apparent indicators of the condition and to prevent the condition from worsening. Immediate actions include:

- Stopping or containing the leakage of hazardous material from a pipe
- Suspending work in an area, which the surveillance activity required by the governing safety authorization basis document (BIO, SAR, etc.) was discovered to be overdue
- Assigning a qualified employee to perform an activity discovered to be conducted by an employee who had not completed the required training program

Immediate actions address only the local event and will not usually address the root or contributing causes, nor will they address similar conditions in other areas of the site.

Short term corrective actions are designed to prevent the problem from recurring during the time the root cause analysis is being conducted and prevent the condition from occurring in similar operations elsewhere at the site.

Short term corrective actions include:

- Performing leak inspections of pressurized piping systems containing hazardous materials
- Developing checklists to ensure surveillances required by safety authorization basis documents are completed prior to conducting activities governed by those documents
- Conducting assessments of personnel training records for activities requiring specified training.

Long term corrective actions are designed to prevent recurrence of the condition which resulted in the non-compliance and are usually developed to address the findings of a root cause analysis.

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### **9.3 Resolving Non-Compliances (Continued)**

Long term corrective actions include:

- Developing and implementing a regularly scheduled predictive maintenance program for pressurized piping systems containing hazardous materials
- Developing and implementing procedures
- Incorporating and requiring periodic management review of surveillance checklists
- Developing assessment criteria and formally scheduling periodic assessments of personnel training records for activities requiring specified training

## **10. PROCESS FOR FLOW DOWN OF ISMS REQUIREMENTS**

### **10.1 Flowdown of Requirements Through Policies and Procedures**

Standards and Requirements identified in the Contract are incorporated into site policies, procedures, and/or project and work plans. The flowdown of requirements to work at the activity level as it relates to the ISMS is illustrated in Figure 8.

A BWXTO Manager has been assigned as the “sponsor” for each applicable Standard and Requirement. The sponsor is responsible for ensuring approved standards and requirements are implemented.

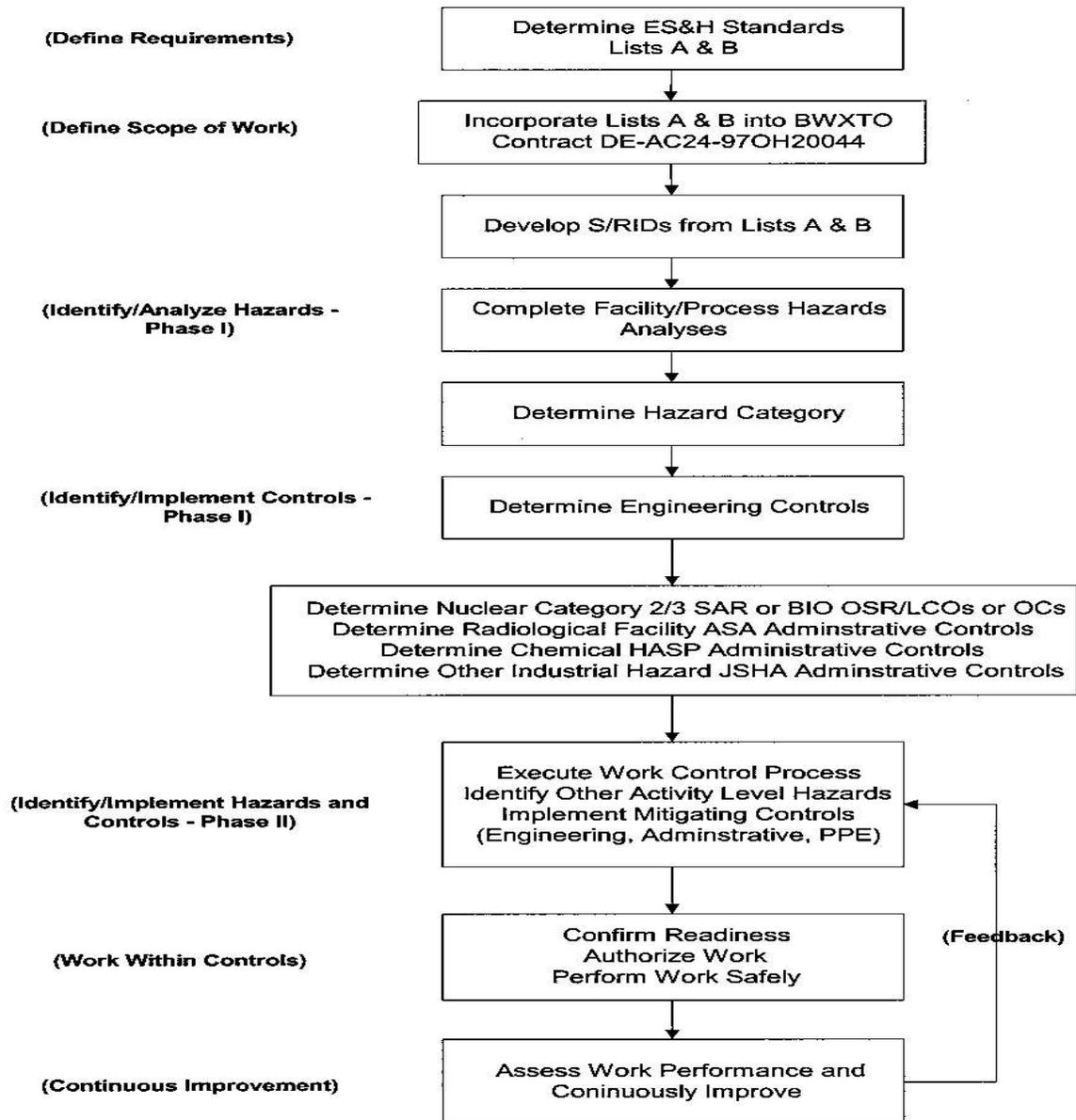
Self-assessments, independent assessments, and external audits and assessments will be used to determine the effectiveness of implementation. Identified non-compliances will be evaluated and resolved.

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**FIGURE 8 – ISMS Flow Down of Requirements**

**Figure 8 — ISMS Flowdown**



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### **10.2 Flowdown of Requirements to Subcontractors**

BWXTO is responsible for compliance with requirements applicable to the Contract, regardless of the performer of the work. Necessary provisions of approved requirements will be included in any and all subcontracts.

### **11. SAFETY MANAGEMENT SYSTEM DESCRIPTION – DOCUMENT USE AND CHANGE CONTROL PROCESS**

BWXTO is committed to performing work in conformance with the ISMS as described in this document. This document is a requirement of the Department of Energy Acquisition Requirement (DEAR) clause of 48 CFR 970 as incorporated into the Contract.

After DOE has approved this document, any changes to the document that affect the objective, principles, or functions must be approved by DOE. BWXTO may make editorial changes to this document without DOE approval.

As DOE and external requirements change, BWXTO will add, delete, and modify safety requirements. BWXTO will review this document annually or as requested by DOE against the current ISMS expectations and will take one of the following actions:

- Submit a total revision of the ISMS Description for DOE approval
- Submit page revisions of editorial changes to DOE for information
- Submit a letter to DOE indicating no change to the ISMS Description

### **12. SAFETY PERFORMANCE OBJECTIVES**

BWXTO's safety performance objectives are established by both DOE and BWXTO management in cooperation with DOE and other stakeholders, and are documented and implemented in order to clearly communicate the results expected from implementing the ISMS.

DOE-MEMP establishes safety performance objectives for BWXTO based upon input from both DOE Headquarters and the Ohio Field Office, and establishes its own objectives based upon observations and surveillances of work activities and ISMS program implementation.

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### **12. SAFETY PERFORMANCE OBJECTIVES (Continued)**

Safety performance objectives established by DOE are documented in both the Contract through the ISMS clauses and Statement of Work Deliverables and in the annual Performance Evaluation Plan (PEP).

Objectives documented in the PEP are developed by DOE-MEMP staff and involve some negotiations with BWXTO management. Likewise, BWXTO establishes its own safety performance objectives in support of McDermott corporate safety initiatives, such as the Target Zero program, and develops others based upon its own observations and evaluations of work activities and safety performance.

Implementation of established safety performance objectives is accomplished through several mechanisms.

First, Statement of Work deliverables are tracked in the site's Corrective Action Reporting System (CARS).

Secondly, objectives identified in the PEP are communicated to responsible managers and are followed closely by BWXTO management.

Finally, and most importantly, objectives are communicated to the entire work force through initiatives and communications develop by both the Environment, Safety, Health, and Quality Department, and the employee-based Safety Impact organization.

Additionally, successful achievement of safety performance objectives are a factor in performance evaluations.

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### 13. MAINTAINING, MEASURING, AND UPDATING THE ISMS

BWXTO develops safety performance objectives, performance measures, and commitments, and updates them on an annual basis as required by sections (d) and (e) of DEAR Clause 970.5204-2. These performance measures and evaluations are factored into the maintenance, feedback, and improvement of the ISMS as well. The DEAR clause also requires the company "... to measure ISM System effectiveness on an annual basis, to identify and allocate resources to meet both the safety objectives and performance commitments, and maintain the integrity of the system". Changes to the ISMS Description resulting from this activity are forwarded to DOE for approval, and are addressed in the annual budget submittals to DOE.

BWXTO performs the following activities on an ongoing basis:

- Evaluates the effectiveness of the safety performance objectives, performance measures and commitments. Determine reasons for success or failure of those commitments.
- Reviews Occurrence Reports and corrective actions for ISMS improvement opportunities.
- Reviews facility data and identifies safety issues to develop improvements required in Site ISMS.
- Reviews worker or operator suggestions from the Employee Concerns Program and employees' safety organizations.
- Reviews DOE program and budget execution guidance and direction.
- Reviews changes to laws, regulations, and directives (List A/List B revisions).

As a part of the annual budget exercise the company identifies the resources necessary to accomplish its commitments and to ensure the overall safe conduct of work (e.g. safety program functions and facility safety upgrades).

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### 13. MAINTAINING, MEASURING, AND UPDATING THE ISMS (Continued)

When BWXTO's ISMS is annually updated, the update will document:

- [1] performance against the previous years safety commitments,
- [2] commitments designed to achieve safety performance objectives and performance measures for the upcoming fiscal year; and,
- [3] resources necessary to meet safety program minimum requirements.

BWXTO has established a rigorous and credible contractor self-assessment program linked to the Integrated Safety Management System, which includes elements that address the following:

- [1] performance measures and performance indicators,
- [2] line evaluations and independent evaluations,
- [3] compliance with applicable requirements,
- [4] data collection, analysis, and corrective actions; and,
- [5] feedback and performance improvement.

BWXTO's independent assessments provide senior management with information concerning ISMS. Analysis of the aggregate information from these assessment and self-assessment activities within the framework of the core expectations provided in Section 4.4 of DOE Guide 450.4-1A provides a clear indication of the status of the ISMS. *A technical accuracy review of formal ISMS self assessments will be performed prior to publication such that only issues for which the need for corrective action is concurred with by management will be included in the report.*

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### **13. MAINTAINING, MEASURING, AND UPDATING THE ISMS (Continued)**

Through this analysis, necessary areas of emphasis and potential improvements should be apparent. Based on this information the BWXTO considers actions or changes to the system such as:

- Corrective actions for functional safety program integration issues,
- Corrective actions to improve ISMS implementation and effectiveness,
- Performance measures and commitments for the next year,
- Any changes required in a self and independent assessment focus or criteria,
- Any changes, if required, to an ISMS Description document; and,
- Impacts of any changes to laws, regulations, and directives (lists A/List B revisions).

BWXTO will determine if the ISM system and safety performance objectives, performance measures and commitments need to be modified, updated, or otherwise revised in the scheduled review and approval process. Additionally, the company reviews outstanding issues from previous ISMS verification reviews, from DOE EH-2 reviews and investigations, from current DOE and contractor assessments, from performance measures and performance indicators, and from recent DOE program reviews and inspections. BWXTO uses the results of this process to evaluate and improve the overall ISMS using a maintenance, feedback and improvement process and discusses the results in its discussions with DOE.

ISM implementation criteria developed as part of the verification process (See Appendix A of the ISMS Verification Team Leader's Handbook) are useful as an evaluation tool on a continuing basis. Maintenance, feedback, and improvement of the ISMS Description is required by the DEAR and is the key element in maintaining the system current.

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## APPENDIX A — 5 X 7 ISMS MATRIX

	Line Management Responsibility for Safety	Clear Roles and Responsibility	Competence Commensurate with Responsibility	Balanced Priorities	Identification of Safety Standards and Requirements	Hazard Controls Tailored to Work Being Performed	Operations Authorization
Define Scope of Work		PP-1056 PP-1056A PP-1059D PP-1060A MD-10286	PP-1056 PP-1056A PP-1056B PP-1056C PP-1060A	PP-1057 PP-1057B PP-1057C PP-1059A MD-10502 MD-10498 MD-10503 MD-50000			
Analyze Hazards	PP-1059 PP-1059A-C MD-10286 MD-10492 MD-10504 MD-10507						
Develop/Implement Controls					PP-1058;1059; 138; 7752 PP-1058A - C PP-1059A - D MD-10507		
Perform Work							PP-1058; 1059; 1045 PP-1058A-C PP-1059A-D MD-10498 MD-10502 MD-10503 MD-50000
Feedback and Continuous Improvement	PP-1060 PP-1060A-E MD-10346 MD-10060						

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### **APPENDIX B — Glossary & Acronyms**

#### **Authorization Basis (AB)**

Those aspects of the facility design basis and operational requirements relied upon by DOE to authorize operation of Nuclear Facilities. These aspects are considered to be important to the safety of facility operations. The AB is described in documents such as the facility Safety Analysis Report (SAR), Basis of Interim Operation (BIO), and other safety analyses, hazard classification documents, the Technical Safety Requirements, DOE-issued Safety Evaluation Reports, and facility-specific commitments made to comply with DOE Orders and policies.

#### **BIO**

Basis for Interim Operations

#### **BWXTO**

BWXT of Ohio, Inc., including McDermott Corporation's BWX Technologies and its partners: Washington Group, Weston, Los Alamos Technical Associates, and Unisys

#### **CARS**

Corrective Action Reporting System

#### **CRB**

Compliance Review Board

#### **DEAR**

Department of Energy Acquisition Regulations

#### **DECARS**

Deficiency Evaluation and Corrective Action Reporting System

#### **DNFSB**

Defense Nuclear Facility Safety Board

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### **APPENDIX B — Glossary & Acronyms (Continued)**

#### **DOE**

Department of Energy

#### **ESC**

Environmental Safeguards and Compliance

#### **ESH**

Environment Safety and Health

#### **FEM**

Facility Engineering and Maintenance

#### **GUIDING PRINCIPLES**

Fundamental policies that guide contractor actions from developing safety policies to performing work.

#### **IMFA**

Integrated Mound Facility Management Assessment

#### **ISH**

Industrial Safety and Hygiene

#### **ISM**

Integrated Safety Management

#### **HR**

Human Resources

#### **LW**

Legacy Waste Project

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### **APPENDIX B — Glossary & Acronyms (Continued)**

#### **MECHANISMS**

This means, i.e., procedures and policies, by which the safety management functions are performed.

#### **MHR**

Main Hill Rad Project

#### **MRB**

Material Review Board

#### **NTS**

Noncompliance Tracking System

#### **PEI**

Project Engineering and Integration

#### **PPE**

Personal Protective Equipment

#### **QA&A**

Quality Assurance & Assessment

#### **RC**

Radiological Controls

#### **SAR**

Safety Analysis Report

## **POLICY/PROCEDURE**

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### **APPENDIX B — Glossary & Acronyms (Continued)**

#### **SAFETY MANAGEMENT FUNCTIONS**

Provides the necessary structure for any work activity that could potentially affect the safety of the public, workers, and the environment.

#### **SMS**

Safety Management System

#### **S/RID**

Standards and Requirements Identification Document

#### **TAILORING/GRADED APPROACH**

The methodology for determining the intensity and formality of safety management mechanisms commensurate with the work and associated hazards.

#### **TO**

Tritium Operations

#### **WM**

Waste Management

## POLICY/PROCEDURE

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### APPENDIX - C —Bibliography – Documents Containing BWXTO-Specific Mechanisms

MD-10038	Nuclear Criticality Safety
MD-10060	Material Review Board
MD-10161	Mound Respiratory Protection Program
MD-10286	Mound Safety & Hygiene Manual
MD-10314	Mound ALARA Program
MD-10346	Procedures for Discrepancy Evaluation/Corrective Action Report Systems
MD-10395	Mound Electrical Safety Manual
<input checked="" type="checkbox"/> MD-10414	Safety Basis Methodology
MD-10449	Conduct of Facilities Maintenance and Utility Operations
MD-10451	Main Hill Tritium Project Organization and Administration
<input checked="" type="checkbox"/>	
MD-10498	Nuclear Facility Work Authorization Package
MD-10502	General Work Plan for Building D&D or Decontamination and Transition at the Mound Site
MD-10503	Isotope Power Systems Work Control System for Facility Modification Project
<input checked="" type="checkbox"/>	
MD-10507	Hazard Identification and Control
MD-50000	Maintenance Work Order and Material Processing
MD-80036	Radiological Operations Procedures
MD-80040	Industrial Hygiene Procedures
MD-80043	Radiological Work Requirements
MD-81070	Mound Waste Acceptance Criteria
OPA-98-0014	Manual of Environmental Practices
PP-1006	BWO Quality Audits and Assessments, Assessment Charter
PP-1045	Pre-Job Briefings
PP 1049	Integrated Safety Management System
PP-1049A	Integrated Safety Management System Description
PP-1049B	Crosswalk: Old Directives to ISM Implementing Policies and Procedures
PP-1049C	Subcontractor Environmental Safety & Health Program
PP-1049D	Senior Management Safety Walk-Through Program
PP-1053A	Root Cause Analysis Procedure

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### APPENDIX - C —Bibliography – Documents Containing BWXTO-Specific Mechanisms (Continued)

PP-1056	Roles, Responsibilities, Training, and Qualifications
PP-1056A	Salaried Position Descriptions
PP-1056B	Training Program
PP-1056C	Building and Facility Managers Roles, Responsibilities, Training, & Qualifications
PP-1057	Defining and Prioritizing Exit Project Work
PP-1057A	Defining Work Scopes
PP-1057B	Risk-Based Prioritization of Work
PP-1057C	Project Controls System
PP-1057D	Configuration Management
PP-1058	Identifying and Using Exit Project Standards and Requirements
PP-1058A	Standards/Requirements Identification Document S/RID Development and Approval
PP-1058B	Document Hierarchy
PP-1058C	Exit Project Directives System
PP-1059	Managing Exit Projects Work and Hazards
PP-1059A	Integrated Work Control Program
PP-1059B	Analysis and Control of Hazards
PP-1059C	Authorization Basis Manual of Practices
PP-1059D	Conduct of Operations
PP-1059E	Startup and Restart of Nuclear Facilities
PP-1059F	ISM Implementing Procedure, Radiological Control
PP-1060	Reporting, Measurement, and Continuous Improvement of Exit Project Performance
PP-1060A	Quality Assurance Program
PP-1060B	Price-Anderson Compliance Program
PP-1060C	Self-Assessment and Corrective Action Program
PP-1060D	Occurrence Reporting and Processing of Operations Information Program
PP-1060E	Lessons Learned Program
PP-7138	Open Door Policy Appeals Process for Employees
PP-7752	Stop Work Policy
PP-7752A	Stop Work Procedure
PP-9347	Writing Waste Management Procedures
Six Point S&H Policy	

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### APPENDIX - C — References

- DOE P. 450.4, Safety Management System Policy
- .0DOE O 232.1A, Occurrence Reporting and Processing of Operations Information  
DOE Ohio Field Office
- Policy OH-40.S003, Safety Management
- DOE G 414.1-1, Implementation Guide for use with Independent and Management Assessment Requirements of 10 CFR Part 830.120 and DOE 5700.6C, Quality Assurance
- DOE G 450.4-1A, Integrated Safety Management System Guide
- DOE-STD-1120-98 Integration of Safety and Health into Facility Disposition Activities
- DOE-HDBK-1085-95 Guidance for Identifying, Reporting, and Tracking Nuclear Safety Noncompliances
- Secretary of Energy Memorandum to all Department and Contract Employees, Secretarial Policy Statement Environment, Safety and Health, April 14, 1998
- DNFSB/TECH-5, Fundamentals for Understanding Standards-Based Safety Management of Department of Energy Defense Nuclear Facilities
- DNFSB/TECH-6, Safety Management and Conduct of Operations at the Department of Energy's Defense Nuclear Facilities
- DNFSB/TECH-16, Integrated Safety Management