



# Environment, Safety, and Health Program Operating Plan

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Advanced Mixed Waste Treatment Project

*(Signature on file—DCR-5548)*

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02/01/2007

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Date

**Advanced Mixed Waste Treatment Project**  
**Environment, Safety, and Health Program Operating Plan**

**Revision Log**

<b>Revision Number</b>	<b>Date Approved</b>	<b>Pages Affected</b>	<b>Description of Revision</b>
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2	11-23-99	NA	Revision 1 with Revised Section D.1, RPP (Approved by DOE as Rev. 2A. Document issued as Rev. 2.)
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10	02/01/07	A.1, A.6, D.13.12	DCR-5548. Update to clarify purpose and roles and responsibilities as they relate to the PD-ISM-01. Correct Natural Phenomenon Hazards Assessment references to DOE documents.

\* Affected page numbers were not tracked in Revisions 1 through 6.

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## **PART A GENERAL**

### **A.1 Purpose**

Prior to May 1, 2005, the Environment, Safety, and Health Program Operating Plan (ESHPOP) was the contractual document for describing AMWTP's safety management program. Pursuant to DOE P 450.4, Safety Management System Policy, through inclusion of List B in the contract, an Integrated Safety Management System (ISMS) description document was created. Consequently, the current purpose of the ESHPOP is to supplement PD-ISM-01, Integrated Safety Management System, in providing descriptions of the functional area integrated management programs and systems that Bechtel BWXT Idaho, LLC (BBWI) uses to implement and achieve a high level of environment, security, safety, and health (ESS&H), and quality assurance performance in completion of its mission. It also provides roles and responsibilities (Appendix A) inherent to Operations and functional area key positions, which are then rolled in individual Employee Position Descriptions (EPDs).

Part B (Facility and Process Description) briefly describes the facilities and processes that constitute the AMWTP. The facilities are located within the Radioactive Waste Management Complex (RWMC) at the Idaho National Laboratory (INL).

Part C (Budget, Business, and Contract) includes organizational approach and requirements that are further outlined in the Project Execution Plan.

Part D (Specific ES&H Authorization Conditions) describes AMWTP functions and the institutional documents that support the management and integration of BBWI's Injury-Free Work Place Policy (PHD-05-06). Applicable functional compliance requirements are incorporated into facility design, programs and implementing documents.

Part E (Maintaining an Approved ISMS) describes the AMWTP process for maintaining an approved ISMS and annual updates to the Safety Performance Objectives, Measures and Commitments (SPOMC).

The functional area documents cited throughout this ESHPOP that support and implement the AMWTP environmental, safety, health, and quality assurance programs are living documents that are periodically reviewed and updated.

### **A.2 Integrated Safety Management System**

To protect the public, the environment, the worker, and property during all phases of the AMWTP and to satisfy requirements outlined in DOE P 450.4, BBWI has implemented an integrated safety management process that is described in PD-ISM-01.

The objective of integrated safety management is to systematically integrate safety into all management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. At the highest level, integrated safety management is implemented through the BBWI contract, the Project Execution Plan, the ESHPOP, the

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Quality Assurance Program, and the project's documented safety analysis. At the operational level, procedures and instructions demonstrate how these principles and functions are implemented by operational management and workers.

### **A.2.1 Guiding Principles for Integrated Safety Management**

The seven guiding principles of integrated safety management defined in DOE P 450.4 provide fundamental guidance to AMWTP in meeting the primary objective of integrated safety management to perform work safely (see Section A.3). In addition, AMWTP has adopted an eighth guiding principle, Employee Involvement to demonstrate the integral role workers play in the operational success of the AMWTP. These eight guiding principles are as follows:

**Line Management Responsibility for Safety.** AMWTP line managers are directly responsible for the protection of the public, the workers, and the environment. Specific management responsibilities are described in Part D of the ESHPOP, the Project Execution Plan, and in MP-COPS-9.2, Operations Organization Administration. At AMWTP, *line management* (see def.) is defined as all managers/supervisors who have personnel reporting to them.

**Clear Roles and Responsibilities.** Clear lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels within the AMWTP. Specific responsibilities for individual environment, safety, and health programs are described in Part D of this document, in the Project Execution Plan, and in MP-COPS-9.2, Operations Organization Administration.

**Competence Commensurate with Responsibilities.** BBWI, AMWTP personnel shall possess the experience, knowledge, skills, and abilities necessary to discharge their responsibilities, especially with regard to safety. Training and qualification for specific safety responsibilities are essential to meeting this principle. AMWTP training programs are described in Section D.7 of this document.

**Balanced Priorities.** BBWI is committed to effective allocation of resources to address safety, programmatic, and operational issues and concerns. Protecting the public, the workers, and the environment is a priority whenever activities are planned and performed. BBWI's commitment to this principle is described in Section A.3 of this document.

**Identification of Safety Standards and Requirements.** Before work is performed, an agreed-on set of safety standards and requirements is established that will provide assurance that the public, the workers, and the environment are protected from adverse consequences.

**Hazard Controls Tailored to Work Being Performed.** Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and its associated hazards. This is evident in the design control, safety analysis, and work control processes.

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**Operations Authorization.** The ESHPOP provides the basis for establishing the conditions and requirements to be satisfied to initiate and conduct operations. Section A.6 describes the phased review and approval processes necessary for performance of work under the AMWTP contract.

**Worker Involvement.** Worker involvement in all aspects of safe operation is a guiding principle of ISMS. Worker involvement goes beyond simple awareness and compliance with established safety and health requirements. Employees must have an active and meaningful way to participate and contribute to the structure and operation of the safety and health program in order to attain safety excellence. This involvement results in “ownership” of the safety and health program by all employees.

### **A.2.2 Core Functions for Integrated Safety Management**

The five core safety management functions provide the process for implementing integrated safety management. The process includes the following steps:

**Define the Scope of Work.** The scope of work for the AMWTP is defined in the BBWI contract and the Project Execution Plan (PEP). The ESHPOP discusses the scope of work in Section B. Section D discusses the functional processes that establish the scope for specific operations and periods of time.

**Analyze the Hazards.** Hazards associated with the AMWTP are identified, analyzed, and categorized in the safety analysis process beginning with the preliminary hazard assessment. These hazards are under review and analysis throughout the safety analysis process and are described in the documented safety analysis. The safety analysis process is addressed in Section D of the ESHPOP. PD-COPS-9.18, Work Control, establishes the process for identifying and analyzing hazards associated with day-to-day work. The hazard analysis and control processes are addressed in Section D.

**Develop and Implement Hazard Controls.** Controls to prevent or mitigate hazards are established in the Project Design Criteria document and in the documented safety analysis. Hazard controls include engineered safety features and administrative controls. Applicable standards and requirements are identified in implementation matrixes and program description documents.

**Perform Work Within Controls.** Readiness is verified through readiness assessments or operational readiness reviews described in Section D of the ESHPOP. BBWI will operate the AMWTP facilities using a standard set of operating procedures to ensure work is performed safely.

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**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, and line and independent oversight is conducted through the continuous improvement process described in Section D.10 (Continuous Improvement Process, Lessons Learned, and Response to Internal and External Audits). The continuous improvement process is governed by QAPP-01, AMWTP Quality Assurance Program Plan, and its implementing procedures.

### **A.3 Statement of Management Commitment to Environment, Safety, and Health**

The BBWI ES&H vision is implemented through constant vigilance, commitment, and continual improvement to achieve and maintain world class environmental, safety, health, and operational performance.

BBWI's principles are:

- Nothing is more important than the safety and health of employees, contractors, and the public, and the protection of the environment.
- Ensuring that no harm comes to employees, employees of business partners, the general public, and the environment, and be respected and trusted by stakeholders to responsibly manage the environment.
- Excellence in ES&H performance is an integral part of business and is essential to the commercial success of BBWI. Integrated safety management serves as the cornerstone for achieving excellence.

To reinforce its policy, BBWI has formed the Employee Safety and Improvement Team (ESIT), with the General Manager serving as its implementing champion. As described in its charter, the ESIT is an integrated group representing a cross-section of project functions, shifts, safety professionals, and operations personnel, who have the appropriate knowledge and expertise to review safety documents and raise and resolve safety issues. This committee provides overall project review, guidance, recommendations, and endorsement, as appropriate, on matters having safety impact.

The ESIT is involved with the review of AMWTP plans and documents for nuclear, radiological, and process safety.

BBWI provides safe working conditions through incorporating safety features into all life-cycle activities supporting the AMWTP. The ESHPOP provides description and direction to the institutional programs that incorporate all applicable and mandatory ES&H requirements.

BBWI continually monitors its ES&H performance through a self-assessment program that provides for both management and worker input. BBWI's goal is to involve all employees in achieving excellence in ES&H performance.

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**A.4 Worker Involvement in Environment, Safety, and Health Performance and Improvement**

AMWTP is committed to working safely and in an environmentally responsible manner. Line management is responsible for implementing an effective safety management system, and the promotion of worker involvement.

The programs and process described in this document are enhanced through worker involvement. Trained and qualified workers who perform the tasks are involved in the planning, hazard analysis, procedure development, and performance improvement/feedback process (i.e., Lessons Learned), as appropriate. Using the tenets of a safety conscious work environment, workers have been empowered to issue “stop work” when they have a safety or quality concern. Any worker who discovers a condition or practice, that creates or, if allowed to persist, might create an imminent danger to a worker, the public, or the environment has the authority and obligation to discontinue the activity and report the condition without fear of reprisal. Additionally, workers are involved in a Zero Accident Approach, which consists of involvement in committees, safety programs, ES&H Leading Indicators, Employee Perception Surveys, and fostering of Human Performance principles and tools. To complete the cycle, workers provide pre- and post-job feedback comments and lessons learned.

Work at the AMWTP has always required a high level of safety awareness. AMWTP management’s support and guidance, combined with employee empowerment, has escalated employee safety awareness and employee involvement. Through aggressive ISMS implementation, employee dedication to safety will continue to prosper.

**A.4.1 Employee Involvement**

AMWTP employees participate in safety using numerous avenues, such as:

1. Participating in Human Performance training and assisting with the promotion of its principles and fundamentals into the work environment
2. Performing behavioral observations, participating in the Keep Everyone and Yourself Safe (KEYS) Program, and offering safety improvement recommendations and feedback
3. Reporting and resolving safety concerns
4. Participating in work control walkdowns and in pre- and post-work briefings
5. Participating on inspection teams
6. Participating on injury, illness, and first aid investigations
7. Establishing safety goals and objectives
8. Preparing corrective actions resulting from annual program evaluations

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9. Sharing safety experiences through safety shares, safety meetings, and submittals to safety publications such as Project Notes.

BBWI workers are ultimately responsible for their own safety. They must perform work in the safest possible manner using standards-based work practices advocated within their specific skill or craft. In addition, BBWI encourages employees to provide input to improve ES&H performance. One method BBWI uses to involve workers in the integrated safety management process is the work control program. The work control program is a process that evaluates and improves how work is identified, planned, approved, scheduled, coordinated, controlled, and executed. This planning process is an improvement to the traditional work control process, primarily through extensive communication and feedback from the appropriate mix of personnel responsible for the work.

The work control program, which includes the Approved Method of Work, Request for Permit to Work, and Permit to Work processes, is designed to provide a safer, more efficient work environment by:

- Encouraging worker participation in the initial work planning process to enhance the effectiveness of safety and work efficiency
- Providing hazard analysis and controls that are appropriate for the job
- Improving worker knowledge of safety requirements
- Fostering teamwork at all levels throughout the project
- Improving the technical accuracy and workability of work packages
- Balancing the degree of work instruction, skill-of-craft, and worksite supervision
- Improve efficiency in the planning, review, and approval of work packages
- Promoting realistic, resource-loaded schedules
- Enhancing job coordination and improving the efficient execution of the work
- Continually improving the work process through real-time feedback.

Employees are encouraged to report their concerns, not only about safety, health, environmental protection, and compliance issues, but also about quality, fraud, waste, reprisals, or working conditions, to their supervisor or the appropriate support organization. All employees have the responsibility to stop work if unsafe conditions are encountered. This responsibility is further reinforced through MP-COPS-9.29, Workers Rights and Responsibilities, which contains our policy on Stop Work Authority and our “Employee Bill of Rights.” The BBWI AMWTP Employee Concerns Program provides more detail regarding how this program is implemented. Employees are encouraged to seek to resolve concerns by working

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with their supervisor or their appropriate support organization. At any stage of the concern resolution process, an employee may elevate the concern to more senior levels of management, to the Human Resources organization, to DOE, or to the DOE Inspector General hotline.

Company processes for suggesting improvements and for identifying and dealing with concerns include, but are not limited to, staff meetings, plan-of-the-day meetings, company announcements, safety meetings, the ESIT committee, the KEYS program, and training sessions. The self-assessment program also provides opportunities for workers to suggest improvements to our ES&H performance.

### **A.5 Human Performance Improvement**

Human Performance Improvement (HPI) requires a significant change in culture. Ownership of one's jobsite, work, work practices, performance, and safety is required to achieve self-sustaining HPI.

Management and employee driven teams work to develop, establish, and implement the HPI program, with the HPI Coordinator and HPI Employee Safety and Improvement Team (ESIT) subcommittee members acting in facilitating roles. The program is implemented through all levels of the organization through the identification of error-prone, risk significant activities and follow-up by designing and implementing task and system-specific changes to reduce or eliminate the probability of errors and unplanned events.

Success of the program involves support of grass roots initiatives at all levels of the organization. Along with active involvement by the steering committee, early and frequent line management attention AMWTP can instill and reinforce the new values, beliefs, and behaviors across the project.

The AMWTP Human Performance Initiative Program Description, PD-ESH-03, and an AMWTP HPI five-year implementation plan provide practical tools that AMWTP uses to promote excellent human performance.

### **A.6 Roles and Responsibilities**

The roles and responsibilities of the BBWI organizations are outlined in Appendix A, AMWTP Position Roles and Responsibilities. From these, employee position descriptions (EPDs) are developed to define individual personnel roles and responsibilities. Additionally, roles and responsibilities for activities are defined in management procedures, project plans, work authorizing documents, and activity-specific implementing procedures and are revised as necessary to ensure that responsibility and lines of authority and accountability are understood. This ensures that the facility is operated inside the safety envelope defined in the AMWTP's authorization basis.

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**A.6.1 Organization and Responsibilities**

**A.6.1.1 Project Organizational Structure**

BBWI has established a project-focused organizational structure with the prime focus on operational excellence. The organization is designed to maximize operational performance while maintaining BBWI's high safety standards and compliance with requirements.

Figure 1 shows the high-level organization structure. The President and General Manager is the project manager and is accountable to DOE-ID for the work covered under the contract.

Unless otherwise specified, the roles and responsibilities of the various AMWTP organizations are summarized in Appendix A. The project maintains organization charts, including names, on the AMWTP Human Resources department home page on the internal website. Line management reporting relationships are illustrated in the organizational charts.

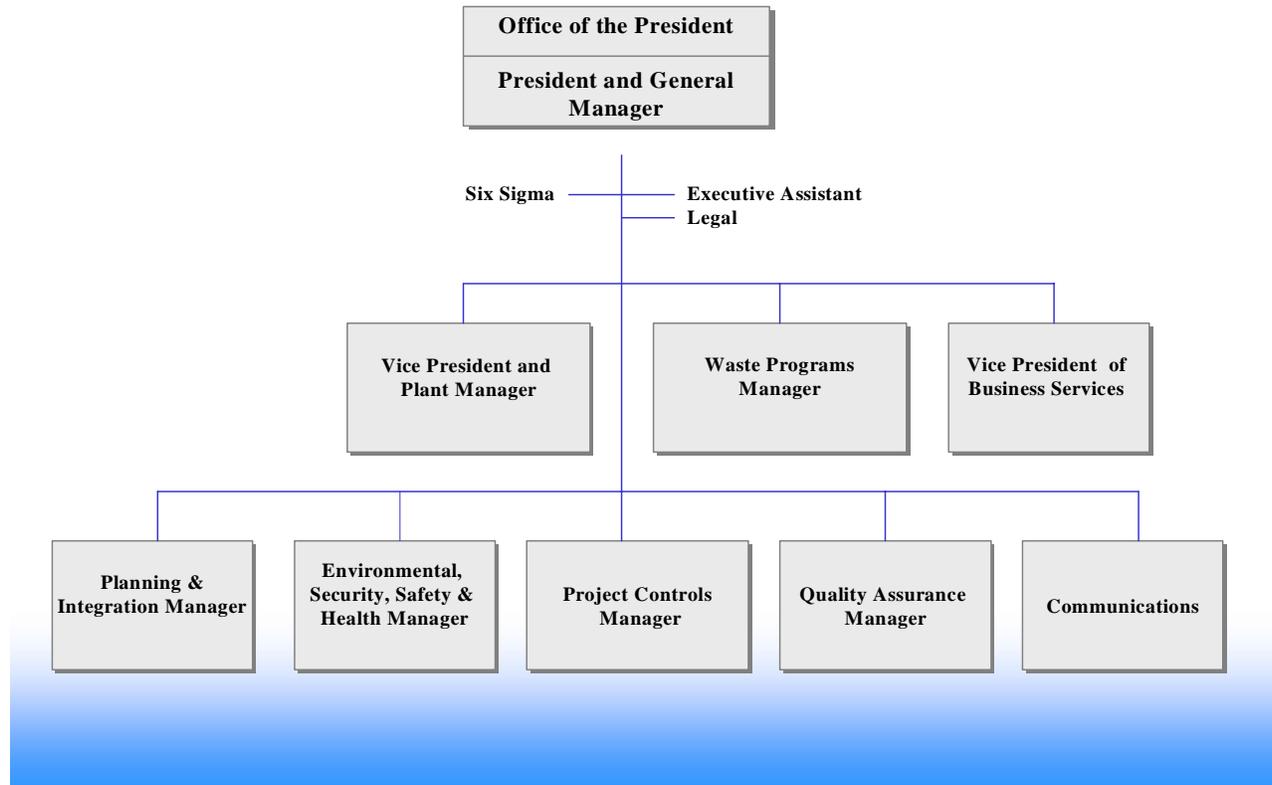


Figure 1. AMWTP organizational structure.

The AMWTP management team is responsible for safety and for the implementation of a strategic management plan designed to ensure all aspects of the safe, effective, efficient, and environmentally compliant operation of the project.

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The AMWTP President or Vice Presidents will be the primary points of contact and coordinators for any interfaces with the Defense Nuclear Facilities Safety Board (DNFSB). (See DOE M 140.1-1B, Interface with the Defense Nuclear Facilities Safety Board.) Any receipt or delivery of communications or direct visits with the DNFSB can be delegated by them so long as the interface is coordinated with these senior managers.

Some of the responsibilities of the DNFSB coordinator are to assist the DOE counterpart in finalizing site visit agendas, determine the forum for responses (e.g., verbal, report) to the DNFSB, ensure DNFSB briefings and tours are given as appropriate, schedule interviews, distribute DNFSB communications in a timely fashion, provide DNFSB requested documentation, ensure facility access is provided as appropriate, and develop applicable schedules for deliverables.

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## **PART B Facility and Process**

This section describes the facility and processes within the scope of the AMWTP. The AMWTP facilities are located in the 55-acre Transuranic Storage Area (TSA), one of the main areas of the Radioactive Waste Management Complex (RWMC) at the INL. All facilities are located within the TSA, and all AMWTP activities take place within this area. Some safety functions at the AMWTP facilities rely on interfaces with INL organizations outside the AMWTP. A memorandum of agreement between the U. S. Department of Energy, Idaho Operations Office (DOE-ID), BBWI, and the INL contractors has been developed that identifies areas of interface among personnel and facilities in a variety of areas to implement specific safety responsibilities. This agreement identifies required services and suppliers in numerous safety-related areas, including utilities (e.g., fire alarm and water systems), security, emergency preparedness, radiation dosimetry, emergency medical services, fire fighting support, and groundwater and air monitoring activities. The agreement also includes use of the mutual aid agreements already signed between various community organizations and the INL Management and Operating (M&O) contractor.

The operations performed at AMWTP prepare waste for shipment to WIPP or other approved disposal facilities. This includes:

- Physically retrieve waste containers from the Resource Conservation Recovery Act (RCRA)-regulated storage modules commonly referred to as Type II modules and the TSA–Retrieval Enclosure (TSA-RE)
- Characterize the retrieved waste
- Treat the waste, including sorting box contents into drums, handling special-case waste, and reducing the size of the waste
- Safely and compliantly store waste awaiting treatment or shipment
- Aggregate, certify, and load suitable waste containers for direct shipment to WIPP or other approved disposal facility
- Receive waste from non-AMWTP entities.

The purpose of the overall project is to treat specific alpha low-level mixed waste and transuranic mixed waste and to prepare the waste for shipment and final disposal at WIPP, or other such facility designated by the U.S. Department of Energy (DOE). The AMWTP addresses one of the conditions in the Settlement Agreement between Idaho’s Governor, the Secretary of Energy, and the Department of the Navy signed on October 16, 1995. Specifically, AMWTP operations support completing the shipment of waste out of Idaho by a target date of December 31, 2015, and in no event later than December 31, 2018.

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On the basis of the waste inventory and associated radionuclide inventory, the AMWTP facilities are Hazard Category 2 nuclear facilities (has the potential for significant onsite consequences).

The AMWTP operations are broadly split into two areas, non-facility operations and treatment facility operations. Non-facility operations include removal of waste from storage locations (TSA-RE and Type II storage modules), characterization activities in buildings WMF-634/-610/-628/-635, on-site transportation, and TRUPACT-II or Type B Container loading before shipping. This includes the Central Characterization Project (CCP) work scope. Treatment facility operations include all operations performed within the Advanced Mixed Waste Treatment Facility (WMF-676), including the sorting of box contents into drums, handling of special case waste, visual examination and size reduction. The scope of non-facility operations allows containers requiring no treatment to be removed from storage, characterized, certified, and shipped.

The following sections briefly describe each of the processes. More detailed descriptions of the specific project objectives, goals, and milestones can be found in the AMWTP Project Execution Plan (RPT-PEP-01) and in the Detailed Contract Baseline.

## **B.1 Retrieval**

In 1970, the Atomic Energy Commission (now U.S. Department of Energy) directed that all waste contaminated with transuranic (TRU) radionuclides be segregated from other types of radioactive waste disposed of at the INL because of the radiotoxicity and long half-lives of the TRU radionuclides. After 1970, the TRU waste was to be stored in a readily retrievable manner. As a result, the TRU waste was stacked in boxes and drums on asphalt pads in the TSA, located in the southeast portion of the RWMC. Most stacks were covered with wood, polyvinyl sheeting, and two to three feet (0.6 to 0.9 m) of soil; waste on the south end of the TSA pad was not covered by soil. In 1996, about 25 years after the first wastes were covered with soil, a large steel building (the TSA-RE) was constructed over the soil-covered stored waste. Over 100,000 waste containers are stored in the TSA – approximately 80,000 of these are in the TSA-RE and 90% of them are 55-gallon steel drums.

Retrieval operations involve removing the soil, sheeting, and wood covering from the container stacks; removing the waste containers from the stacks; inspecting, monitoring, and barcoding the containers; overpacking, repacking, venting, and relidding containers as necessary; possible storage; and loading containers for transport.

The waste currently stored in the Type II storage modules may be retrieved for characterization or shipment. Regardless, the waste containers are subsequently retrieved and loaded for transport.

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## **B.2 Characterization (non-CCP)**

Retrieved containers can be characterized in the Characterization Facility (WMF-634), the TSA-RE, and the Type I storage module (WMF-635). Characterization activities include real-time radiography (RTR), screening assay, radioassay, and, for certain waste types, headspace gas sampling, core sampling, visual examination, and/or gas generation rate testing.

Characterization equipment within WMF-634 includes RTR units that are used for both drums and boxes, drum vent/headspace gas sampling systems, separate drum and box radioassay systems, and a drum coring system. The drum coring system is located in a coring room. A drum roller conveyor and an overhead hoist are used to move drums through the characterization process. The central aisle allows easy access for unloading and loading truck-transported waste.

RTR allows operators to view items inside containers without opening the containers. For most waste forms, RTR confirms the existing waste type/code and identifies the presence of noncompliant disposal items. RTR may also be used to confirm the waste matrix type (for example, sludges, paper/rags/plastic/rubber) and packaging methods, as well as to help determine the waste codes of unknown containers.

Headspace gas sampling confirms the presence or absence of hydrogen, methane, and volatile organic constituents. Headspace gas generation testing is performed to determine if drums meet waste container transport criteria.

Radioassay determines the amount and isotopic composition of nuclear material in each waste container, as well as estimating the decay heat.

As characterization information is generated, it is entered into the data management system. The characterization information is retrieved for use in certifying the waste for safe and compliant transportation and disposal, or to confirm acceptance criteria for future treatment options.

After characterization, waste containers are typically placed in storage within the Type II storage modules. Certain waste containers may be identified as acceptable for direct shipment to WIPP or other onsite or offsite facilities. These containers are transferred from characterization to a Type I storage module (WMF-635), the Type II storage modules, or the Waste Aggregation Facility, or shipment facility.

## **B.3 Storage (non-CPP)**

Following retrieval and/or characterization, waste containers may be stored pending shipment or future treatment. Waste is generally stored in five existing Type II storage modules, which are approximately 28,800-ft<sup>2</sup> (2,676 m<sup>2</sup>) prefabricated corrugated metal buildings (WMF-629 to WMF-633). In addition, some waste may be temporarily stored in the TSA-RE (WMF-636), the Characterization Facility (WMF-634), and the Type-I Module (WMF-635).

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#### **B.4 Treatment**

Treatment of waste will consist primarily of volume reduction. Volume reduction is performed two ways.

- Waste boxes will have their contents removed and sorted in the box lines to appropriate waste streams and then the contents are placed into appropriate containers (e.g., 55-gallon drums).
- Direct-feed drums, along with drums filled from the box lines, are size reduced by the Supercompactor - a 2,000 ton hydraulic press with the ability to compact drums vertically into “pucks.” The compacted drums will then be placed into 100-gallon puck drums and packaged for final shipment to the WIPP facility located in Carlsbad, New Mexico, or other acceptable disposal site.

It is anticipated that a small percentage of AMWTP waste containers will require additional treatment. These containers are sent to the special-case waste drum repackaging area or another appropriate treatment facility. This operation consists primarily of opening each drum and removing the noncompliant material. Noncompliant material is either treated to become compliant or is set aside for future disposition. In some circumstances the entire contents of a drum are emptied into a glove box and sorted. Compliant items will then be placed into a 55-gallon drum and sent to the Supercompactor for volume reduction or will be shipped directly without further treatment.

Waste containers are carefully selected and processed through the facility in planned sequences to ensure product quality and continuous feed to the process equipment, maximize overall facility use, minimize requirements for in-process staging, and prevent problems due to incompatibilities between particular containers or types of waste. The prevention of mixing incompatible materials is controlled administratively and is driven by the RCRA permit requirements and the WIPP waste acceptance criteria. Incompatible waste streams are documented, and operations procedures are used to ensure that incompatible wastes are not mixed. Wastes requiring pretreatment or treatment are identified by Item Description Codes (IDCs), generator-supplied information, WTS, and RTR examination. Wastes are reviewed for IDCs and hazardous constituents before processing at WMF-676 to ensure incompatible wastes are not commingled.

#### **B.5 Assembly and Loading TRUPACT-II Packages**

For waste identified as acceptable for shipment, waste payloads are assembled in the Waste Aggregation Facility or the Type I storage module. This activity consists of selecting and retrieving waste containers from storage or the treatment facility and packaging to meet WIPP requirements. Containers making up a certifiable load are loaded onto TRUPACT-II pallets or into ten-drum overpacks or standard waste boxes in final preparation for loading into a TRUPACT-II container.

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Following receipt of the authorization to ship, a payload of containers is loaded into a TRUPACT-II container and the inner and outer lids are installed and helium leak tested. Upon completion of loading, certification and manifesting of the shipment the trailer is transferred to the trailer inspection area. The trailer and tractor is then inspected by certified inspectors from the Idaho State Police. Upon satisfactory completion of inspections, the shipment is released for transport to WIPP.

## **B.6 Central Characterization Project**

The CCP activities are conducted primarily in WMF-610 and WMF-628. WMF-610 contains several pieces of equipment for the characterization of waste containers, and space for a small amount of storage. WMF-628 is a Type-II module (similar to WMF-629 through -634) which has been converted to allow several waste characterization operations to take place, in addition to a certain amount of waste storage capacity. Processes conducted in WMF-610 and WMF-628 are similar to those conducted in the WMF-634 (see Section B.2). Both facilities are used to characterize containers of waste that may be shipped to WIPP without further treatment. WMF-628 is also used for storage of certain items that do not meet the current acceptance criteria for the AMWTP treatment process or WIPP.

## **B.7 Type I Storage Module (WMF-635)**

The Type I storage module, including the WMF-615 facility inside WMF-635, encloses equipment for handling and examining waste containers. WMF-635 provides areas for assembling TRUPACT-II or Type B waste packages, gas generation testing, drum operations (e.g., drum venting), and TRUPACT-II cask/Type B loading operations. The building is equipped with a drive-through access for delivering waste drums and boxes. A receiving area is also provided for secondary waste generated at other AMWTP facilities. Soft-sided confinement structures may be used in WMF-635 for operations requiring contamination control, such as drum liquid absorption or the size reduction of plywood removed from the TSA-RE storage arrays.

WMF-635 houses a Drum Venting Facility (WMF-615), which is located in the southwest corner. The facility is used for remotely operated drum venting and filter insertion operations; the silo contains the punch and filter insertion machine. The outer drum vent building provides an area for the entrance and exit conveyors, drum survey station, control room, hydraulic unit, and some headspace sampling and ventilation equipment.

This section provided only a brief overview and introduction into the operations conducted at the AMWTP. More detailed descriptions of the specific project objectives, goals and milestones can be found in the AMWTP Project Execution Plan (RPT-PEP-01). A more detailed description of approved operational activities can be found in the AMWTP Documented Safety Analysis (RPT-DSA-02).

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## **B.8 Daily Operations**

Daily operations are directed via the plan-of-the-day (POD) meetings conducted every afternoon to discuss the next day's activities and the activities completed during the past 24 hours. Plan-of-the-week (POW) meetings are also conducted to prepare for the next week's work.

Daily operations begin with each shift turnover, which takes place at shift change. After turnover is complete, a crew meeting is conducted between the shift team lead (STL) and crew members to discuss previous work, address any safety-related items, and outline work activities for the day. Concurrently, the area shift manager, nuclear facility manager (NFM), and representatives from Maintenance, Radiological Control, and Safety meet to discuss any equipment breakdown that has occurred overnight and determine the priority of the repair. If the NFM deems that the priority of the repair is higher than other maintenance work listed for the day, then the NFM approves the addition of the item to the POD to be planned. If a work request does not exist, the request is initiated and the work is analyzed and planned. A work order is obtained, and a work control document (i.e., request for permit to work, permit to work) is requested from the Safe System of Work Control (SSWC) group. Once the work control package is prepared, a job walkdown is performed. After a pre-job briefing, the work is authorized to proceed. Upon completion of the work, a post-job meeting provides a forum for feedback on the success of the job and ideas for improving the work in the future. This feedback information is documented in the work package to allow the planner to make the changes.

All operations activities require pre-job briefings before the work begins to ensure that all participants understand the scope of work, hazards, mitigations, and responsibilities. INST-COPS-9.18.2, Permit to Work, specifies the process for conducting, documenting, and incorporating pre-job briefings and for documenting, evaluating, and tracking feedback identified during the performance of work. Human performance tools such as the error precursors and five-step questioning process card are provided for enhancing the pre-job briefing. A pre-job briefing is the final confirmation of readiness before a task is authorized and performed.

## **PART C Business Services**

The combined Business Services organizations provide the suite of technical, administrative support, and business management functions necessary for the operation of the AMWTP. Since AMWTP is funded from a single funding source, BBWI has been able to keep its systems and processes focused on supporting the unique mission of the AMWTP while providing safe and efficient administrative operations. The scope of the Business Services organizations is defined in the requirements of the DOE Contract to provide Financial, Human Resource, Acquisition Management, and Project Planning and Control (Budgeting) functions. Those functions, with associated requirements and resources are, identified below.

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**C.1 Financial Operations**

Financial Operations provides the required financial system and processes to enable company managers to make sound financial and business decisions in accomplishment of company goals. The business system used by AMWTP is the Deltek Costpoint system, which includes fully integrated modules for electronic time reporting, finance, procurement, human resources, and payroll. The system is configured to operate in a cost-reimbursable integrated DOE contractor environment. Deltek Costpoint enables costs to be fed from the various source systems and collected in the financial module, which applies the relevant burdens and subsequently integrates to the project management system, and is used for financial reporting. The system and processes also provide the capability to report financial status and balances into the DOE Standard Tracking and Reporting System that meets the DOE requirements for financial reporting as an integrated DOE contractor.

The financial system and processes provide the required financial policies, procedures, and practices, and processing capability for all accounting functions and transactions. Functions include: payroll, timesheet reporting, accounts payable, accounts receivable, travel, benefits accounting, general ledger, banking using the DOE letter of credit, and DOE financial reporting. The financial systems comply with applicable laws, regulations, DOE orders, and other federal requirements and provide the needed internal controls over financial activities and transactions. The emphasis of the financial systems and processes is to provide effective and efficient operations that meet the requirements of the DOE contract.

**C.1.1 Requirements**

DOE Contract DE-AC07-99ID13727

- Comply with Cost Accounting Standards as disclosed in the Disclosure Statement
- Attachment A, Section J, Personnel Policies and Procedures

DOE Order 534.1B, Accounting

Various federal and state laws (such as the Employee Retirement Income Security Act, the Fair Labor Standards Act, and the tax code)

Accounting Standards

Approved AMWTP Project Execution Plan

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**C.1.2 Resources**

DOE Accounting Handbook

Federal and state tax codes

MP-ADMN-1.11, Domestic Travel

MP-ADMN-1.14, Foreign Travel

DOE Order 522.1, Pricing of Departmental Materials and Services

AMWTP Disclosure Statement

**C.2 Acquisition Management**

**C.2.1 Procurement and Property Management**

BBWI has implemented a DOE-approved procurement system that complies with prime contract requirements and provides a cost-effective process for acquiring needed materials and services. Long-term agreements with major suppliers for high usage consumables and spare parts have been established or initiated. This approach enables BBWI to have favorable, predictable pricing, while reducing operational risks due to material shortages. Blanket Master Contracts are placed for technical support and staff augmentation services to facilitate rapid response and administrative expediency. In addition, a purchase card program has been implemented to accommodate the purchase of low-value, non-safety-significant, non-quality items. All of these systems have controls in place to protect against misuse and/or fraudulent purchasing. A self-assessment program in accordance with the DOE sponsored Balance Scorecard Performance Management Program is used to measure the procurement system efficiency and effectiveness.

BBWI has established a DOE-ID approved Government Property Management System consistent with the requirements of the prime contract. The automated property database (Bechtel Uniquely Reportable Property System) currently in use at AMWTP is mirrored after other approved Bechtel Government Property programs. During the first year of operation the property management organization met and/or exceeded all contractual requirements/milestones. These milestones/requirements included such areas as completing a one hundred percent (100%) base line inventory, establishment of accountability for the real and personnel property.

Key features of the BBWI procurement and property systems include the following:

- MAXIMO MRO Software system is used for purchasing supplies and services and is fully integrated with the DELTEK Costpoint financial system.

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- The MAXIMO system is also used for inventory management. This system provides notice and reorder when minimum quantity levels are reached, thereby reducing the effort required to maintain adequate stock.
- An aggressive but realistic Small Business program is in place to provide a roadmap for achieving socioeconomic goals.
- An Affirmative Procurement Program is being implemented to support energy reduction and pollution prevention initiatives.
- The Subcontractor safety program includes all elements necessary to ensure safe work practices at AMWTP.
- A new property database (Sunflower) is currently being deployed which will establish the database and provide for migration of property data.

**C.2.2 Requirements**

DEAR 970.5204-22, Contractor Purchasing System

DEAR 970.5204.21, Property

**C.2.3 Resources**

MP-PCMT-15.1, Purchase Requisition Preparation

MP-PCMT-15.2, Proposal Solicitations and Evaluations

MP-PCMT-15.3, Purchase Order/Subcontract Preparation and Control

MP-PCMT-15.5, Special Case Procurements

MP-PCMT-15.7, Vendor Qualification and Performance Evaluation

MP-PCMT-15.8, Property Management System Procedure

MP-PCMT-15.9, Control of Government Property

MP-PCMT-15.10, Lost, Damaged, or Destroyed Government Property

MP-PCMT-15.11, Receipt of Government Property

MP-PCMT-15.12, Records of Government Property

MP-PCMT-15.14, Physical Inventories

MP-PCMT-15.15, Property Loans

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MP-PCMT-15.16, Property Transfer

MP-PCMT-15.17, Administration of Property Held By Subcontractors

MP-PCMT-15.19, Disposing of Nonproliferation Sensitive Government Property

MP-PCMT-15.20, Utilization & Disposal of Real Property

MP-PCMT-15.21, Materials Management

MP-PCMT-15.22, Purchase Card Program

### **C.3 Human Resources Process Description**

BBWI has implemented Human Resources (HR) systems that encourage employees to form collaborative working partnerships with BBWI's management to achieve AMWTP milestones and objectives. The HR function supports the BBWI mission by attracting, retaining, and motivating the AMWTP workforce. Key features of the BBWI human resources program include the following:

- *Employee Selection:* HR administers the hiring function. HR assists managers in obtaining top talent and ensuring that successful job candidates' competencies are commensurate with their responsibilities.
- *Employee Relations/Concerns:* BBWI has established a system to ensure the fair, equitable treatment of employees. As well, an Employee Concerns Program (ECP) has been established to ensure that employees are able to report, without fear of reprisal, concerns regarding environmental issues, safety and health, working conditions, discrimination, sexual harassment, personal problems, quality, or other situations affecting an employee's relationship with the Company, its managers, or its employees. Although responsibility for BBWI's "open door policy" is with each individual manager, HR oversees this policy through the ECP and employee relations activities in general.
- *Employee/Management Roles and Responsibilities:* HR administers systems and maintains tools used to ensure that roles and responsibilities are understood and that employees and managers are held accountable to them. This includes the Performance Appraisal system, the Employee Handbook (GDE-10), the Employee Discipline system, and Organization Charts.
- *Competitive Compensation Program:* BBWI is preparing a competitive compensation program to attract highly competent and critically skilled employees. BBWI will develop a job classification and grade structure to control BBWI salaries to regional and industry norms.
- *Incentive Compensation Programs:* BBWI has implemented reward and incentive programs tied to production and safety milestones.

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- *Benefits (Medical, Dental, Vision, Savings):* BBWI offers a comprehensive and cost-effective suite of benefits to all employees.

### **C.3.1 Requirements**

Attachment A, Section J, Prime Contract

DOE Order 350.01- Contractor Human Resource Management Programs

Various federal and state regulations such as but not limited to:

- Fair Labor Standards Act
- Privacy Act
- Civil Rights Legislation
- Title VII
- Executive Order 11246
- FAR 31.205-6, Compensation for Personnel Services
- DEAR 970.3102-2, Compensation for Personnel Services
- Section 3161 of the National Defense Authorization Act for 1993
- Idaho Operations Office Work Force Restructuring Plan
- Department of Labor Guidelines
- DOE Performance Evaluation and Measurement Plans
- Consolidated Omnibus Budget Reconciliation Act
- Employee Retirement Income Security Act of 1974 (ERISA)
- Vietnam Era Veterans' Readjustment Act

### **C.3.2 Resources**

GDE-10, Employee Handbook

MP-ADMN-1.4, Employee Discipline

MP-ADMN-1.5, Performance Appraisal

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MP-ADMN-1.6, Recruitment

MP-ADMN-1.8, Employee Concerns

MP-ADMN-1.19, Organizational Charts

RPT-ADMN-08, Substance Abuse

#### **C.4 Project Planning and Controls**

The AMWTP contract baseline comprises the scope, schedule, and budget required to define the work scope and establish the priorities for accomplishing the technical requirements of the BBWI contract for the period May 1, 2006, through April 30, 2008. The contract baseline was developed based on the scope of work contained in the contract and in RPT-PEP-01, Project Execution Plan (PEP). Baseline management ensures that these aspects of the project are clearly defined, controlled, and managed to ensure that contract deliverables fulfill technical, operational, and safety requirements of the project. The cost and schedule baselines and earned value systems are the basis for measuring project performance. Changes to the cost and schedule baselines due to revised technical requirements or external factors beyond BBWI's control are identified, evaluated, and submitted to DOE-ID for approval. The work scope required to safely accomplish the requirements of the contract is managed through the AMWTP Work Breakdown Structure, which captures the work elements necessary to safely execute the project scope. Each control account has a control account manager who is responsible for the scope, schedule, and cost.

##### **C.4.1 Requirements**

DOE O 413.3, Project Management

##### **C.4.2 Resources**

MP-ADMIN-1.27, Baseline Change Control

MP-ADMIN-1.28, Baseline Trend Program

MP-ADMIN-1.26, Earned Value Management System

AMWTP Monthly Project Status Report

#### **C.5 Requirements Management**

The AMWTP requirements management process identifies responsibilities and methods for identifying safety standards and requirements that require impact analysis for implementation flow down. It provides the process to ensure external requirements are evaluated and, if applicable, integrated into implementing documents and work processes. It also provides direction for demonstrating requirements implementation through roll-down implementation

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matrices managed in the controlled document system. A Requirements Management homepage contains a list of these matrices, in one location, with links to the controlled documents.

External requirements include, but are not limited to, federal, state, and local laws, DOE directives identified directly by the AMWTP contract (List B), WIPP Waste Acceptance Criteria and other WIPP related documents, and AMWTP authorization basis documents (environmental permits, DSA, etc.)

This process, implemented per MP-ADMN-1.18, Requirements Management, directly contributes to ISMS core functions (i.e., defines the work, balances priorities, and identifies safety standards and requirements). Permit modification requests (PMRs) made at the request of the Permittee (AMWTP operator or DOE) are not subject to this procedure. All such PMRs and any requirements resulting from the DEQ approval of the PMR are managed in accordance with MP-EC&P-7.12.

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## **PART D SPECIFIC ES&H AUTHORIZATION CONDITIONS**

### **D.1 Radiation Protection Program**

The AMWTP Radiation Protection Program is described in PD-RS&C-01, Radiation Protection Program (RPP). This document describes the program for controlling exposure to ionizing radiation and for handling radioactive materials, and contains those requirements that are fundamental to the RPP, including those mandated by 10 CFR 835. The RPP includes all aspects of radiological control applicable to performing hazardous work, including:

- Management and administrative requirements
- Standards for internal and external exposure
- Monitoring of individuals and areas
- Entry control program
- Posting and labeling
- Records.

The AMWTP Radiological Controls organization supports the INL Radiological Assistance Program in accordance DOE O 5530.3, Radiological Assistance Program, by supplementing manpower needs as necessary.

### **D.2 Nuclear Criticality Controls**

#### **D.2.1 Introduction**

This section details the Advanced Mixed Waste Treatment Project (AMWTP) nuclear criticality safety program. The purpose of the program is to ensure that sufficient controls are in place to adequately reduce the potential of an inadvertent criticality as a result of retrieving and characterizing waste, transporting waste to the Advanced Mixed Waste Treatment Facility (AMWTF), processing waste, and loading the product for transport from the INL.

#### **D.2.2 Requirements**

The requirements to be met for the criticality safety program are contained in the following documents:

- 10 CFR 835.1304, Nuclear Accident Dosimetry.
- 10 CFR 830, Subpart B, Safety Basis Requirements
- 10 CFR 830, Appendix A, Section G.2, Hazard Controls

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- DOE O 420.1B, Facility Safety, December 2005, criticality safety sections only (This document requires that the following ANSI/ANS standards, DOE standards, and DOE orders be adhered to, however some of the standards as detailed below are not relevant to AMWTP, hence the requirements within those standards are not included in this program):
  - DOE-STD-1134-99, Review Guide for Criticality Safety Evaluations
  - DOE-STD-1135-99, Guidance for Nuclear Criticality Safety Engineering Training and Qualification
  - DOE-STD-1156-2002, Self-Assessment Standard for DOE Contractor Criticality Safety Programs
  - DOE-STD-1186-2004, Special Administrative Controls
  - DOE-STD-3007-93, Guidelines for Preparing Criticality Safety Evaluations at Department of Energy Non-Reactor Nuclear Facilities.
  - ANSI/ANS-8.1-1998, Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors
  - ANSI/ANS-8.3-1997, Criticality Accident Alarm System
  - ANSI/ANS-8.5-1986, Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material (NOT APPLICABLE)
  - ANSI/ANS-8.6-1983, R88, Safety in Conducting Sub-critical Neutron-Multiplication Measurements in Situ, (NOT APPLICABLE)
  - ANSI/ANS-8.7-1998, Guide for Nuclear Criticality Safety in the Storage of Fissile Materials
  - ANSI/ANS-8.9-1987, Nuclear Criticality Safety Criteria for Steel-Pipe Intersections Containing Aqueous Solutions of Fissile Materials (NOT APPLICABLE)
  - ANSI/ANS-8.10-1983, R88, Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement (NOT APPLICABLE)
  - ANSI/ANS-8.12-1987, R93, Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors (NOT APPLICABLE)
  - ANSI/ANS-8.15-1981, R87, Nuclear Criticality Control of Special Actinide Elements
  - ANSI/ANS-8.17-1984, R89, Criticality Safety Criteria for the Handling, Storage, and Transportation of LWR Fuel Outside Reactors, (NOT APLICABLE)
  - ANSI/ANS-8.19-1996, Administrative Practices for Nuclear Criticality Safety
  - ANSI/ANS-8.21-1995, Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors. (NOT APPLICABLE)

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### **D.2.3 Fissile Material Considerations**

Generally, containers and plant areas containing fissile bearing waste will only contain a few grams of fissile material in the form of contamination. This amount is significantly less than the minimum critical mass of not less than 620 fissile gram equivalent (FGE) Pu-239. Additionally, any fissile material is usually present in a form that is far from optimum in terms of the following:

- Moderation
- Reflection
- Geometry
- Likely presence of neutron absorbing materials (e.g., polyvinyl chloride or steel).

Given that the material will likely be far from optimized, the minimum critical mass of 620 FGE Pu-239 is very conservative. In reality before the potential for a criticality exists, at least twice this minimum critical mass would need to accumulate. (See various criticality safety analyses.) Even so, because of the large quantities of waste, the total quantity of fissile material being handled is significantly greater than a critical mass. Thus, criticality analyses have been performed and appropriate controls defined to ensure that, under normal conditions and potential contingency conditions, a criticality is extremely unlikely.

### **D.2.4 Nuclear Criticality Safety Program Philosophy**

The AMWTP retrieves transuranic and alpha low-level mixed waste from the TSA-RE and the Type II storage modules. The waste is characterized, processed, and prepared for shipment in a transuranic package transporter-II (TRUPACT-II) (or other approved transport container) to WIPP.

To establish the basis of criticality safety for AMWTF operations, the AMWTP Waste Acceptance Criteria (DOE-ID, 1996a) limit the incoming fissile content to a maximum of 200 FGE Pu-239 per 55-gallon drum (or larger drum, e.g., 55-gallon drum in an 83-gallon overpack) or 325 FGE Pu-239 per waste box. Criticality safety of the AMWTP product is established by satisfying TRUPACT-II loading requirements and fissile mass limits from the WIPP Waste Acceptance Criteria.

Loading requirements for the TRUPACT-II are specified in the documented safety analysis for the TRUPACT-II shipping package (Westinghouse, 1999). As specified in that documented safety analysis, a TRUPACT-II container may be transported only if the FGE Pu-239 plus two times the uncertainty in determining the fissile gram equivalent is below 200 grams per 55-gallon drum, 325 grams per standard waste box, and 325 grams per TRUPACT II. (NOTE: *Other limits, e.g., decay heat, also apply.*)

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Key areas within the AMWTF are controlled on a fissile mass basis. These area mass limits are set to less than the minimum safely sub-critical mass and on consideration of the fissile properties of the material will remain safe in the event of double batching.

The purpose of the AMWTF nuclear criticality safety program is to ensure that criticality safety is addressed and reviewed with the goal of ensuring that adequate margins of criticality safety are demonstrable for normal and credible abnormal operations. At any given time, the quantities and concentrations of fissile materials (primarily Pu-239) in the AMWTF are typically low. Conservative criticality safety evaluations are performed to evaluate criticality hazards in the AMWTF. Similar evaluations are performed to evaluate criticality hazards during retrieval, characterization, storage, and transport within AMWTF areas.

The criticality safety evaluations include demonstrable margins of safety that conservatively account for uncertainties in the following:

- The process and storage conditions (e.g., quantity of fissile material, moderation)
- The data and methods used in the criticality safety evaluation.

#### **D.2.5 Criticality Safety Evaluations**

The AMWTF criticality safety program is based on the criticality safety evaluations performed for the AMWTF documented safety analysis. All criticality safety evaluations for AMWTF processes are performed and reviewed by competent analysts. The criticality safety evaluations, which conform to the requirements listed in MP-NFCS-02-IM, Implementation matrix for AMWTF Environmental, Safety and Health Program Operating Plan Section D.2, Nuclear Criticality Controls, are prepared using the guidance presented in DOE Standard STD-3007-93, Guidelines for Preparing Criticality Safety Evaluations at Department of Energy Non-Reactor Nuclear Facilities. These evaluations demonstrate that operations involving fissionable materials are subcritical under both normal and credible abnormal conditions. The criticality safety evaluations are summarized in the AMWTF documented safety analysis.

The following specific items related to criticality control are included in the criticality safety evaluations or associated documentation:

- A description, using appropriate sketches or drawings, of equipment and facilities in which the hazard of criticality exists showing dimensions in sufficient detail to permit the evaluation of the limits and controls intended to prevent inadvertent criticality.
- A statement of the quantities of fissionable material allowed in each step of the process. Nuclear Material Safety Limits and Criticality Working Requirements are established for certain operations on the basis of the results of the criticality safety evaluations.
- A description of the methods for collecting, handling, and transporting products from each process area or individual operation and evaluation of the nuclear safety of these methods.

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- A description of the assay techniques used to determine the quantities of fissionable material contained in the incoming waste containers.
- A description of the controls used to prevent criticality resulting from the accumulation of fissionable materials in the process areas.
- A description of the systems used for controlling fissile mass quantities throughout the AMWTF.

### **D.2.6 Criticality Safety Program**

The purpose of the criticality safety program is to ensure that appropriate actions are taken to prevent and mitigate the consequences of a criticality accident. The program identifies the following:

- Nuclear Operations management responsibilities
- Facility/Operations management responsibilities
- Criticality Safety staff responsibilities
- Process analysis and control
- Criticality Safety review and assessment
- Criticality accident emergency response
- Criticality Safety principles and criteria
- Criticality accident detection system
- Criticality Safety training
- Firefighting.

When recommendations are not implemented, justification shall be documented. This applies to the criticality program as detailed in ANSI/ANS 8.1.

### **D.2.7 Definitions**

*Contingency.* A possible but unlikely change in a condition/control important to the nuclear criticality safety of a fissile material operation that would, if it occurred, reduce the number of barriers (either administrative or physical) that are intended to prevent an accidental nuclear criticality.

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*Criticality accident.* The release of energy as a result of accidentally producing a self-sustaining or divergent neutron chain reaction.

*Criticality safety.* Protection against the consequences of an inadvertent nuclear chain reaction, preferably by prevention of the reaction. This encompasses procedures, training and other precautions, in addition to physical protection.

*Documented safety analysis (DSA).* A documented analysis of the extent to which a nuclear facility can be operated safely with respect to workers, the public, and the environment, including a description of the conditions, safe boundaries, and hazard controls that provide the basis for ensuring safety.

**(Definition from 10 CFR 830.3)**

*Fissile material.* Materials containing nuclides capable of a fission chain reaction (e.g., Pu-239, U-235, etc.)

*Hazard.* A source of danger (i.e., material, energy source or operation) with the potential to cause illness, injury or death to personnel or damage to a facility or to the environment (without regard for the likelihood or credibility of accident scenarios or consequence mitigation).

*Minimum accident of concern.* The smallest accident a criticality alarm system is required to detect.

*Process area.* An area in which fissile material is handled, stored, or processed.

*Safety analysis.* A documented process, such as criticality safety analyses, (a) to provide systematic identification of hazards within a given DOE operation, (b) to describe and analyze the adequacy of the measures taken to eliminate, control or mitigate identified hazards, and (c) to analyze and evaluate potential accidents and their associated risks.

## **D.2.8 Criticality Detection and Alarm Systems**

In accordance with the requirements of this section, criticality detection systems are located in each area of the AMWTF where the probability of a criticality incident is determined to be greater than or equal to  $1 \times 10^{-6}$  per year or where a criticality incident cannot be shown to be incredible. Criticality alarm systems are located in specific areas within the AMWTF and annunciate the alarm signal both inside and outside the AMWTF. Areas are also equipped with fixed nuclear accident dosimeters.

If a criticality incident occurs, AMWTF has interface agreements with the INL dosimetry group and analysis laboratory for immediate processing of personal and fixed nuclear accident dosimeters and for processing special bioassay samples (DOE-ID, 2000a). As required by 10 CFR 835.1304, Nuclear Accident Dosimetry, nuclear accident dosimeters are immediately processed to help calculate dose rates in various AMWTF locations. Bioassays are conducted on an as-needed basis to determine if internal contamination of personnel has occurred.

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### **D.2.9 Implementing Documents**

The following documents define and/or implement the AMWTP criticality safety program:

- AMWTP criticality safety procedures (MP-NFCS-4.X series)
- MP-NFCS-02-IM, Implementation matrix for AMWTP Environmental, Safety and Health Program Operating Plan Section D2, Nuclear Criticality Controls
- MP-RTQP-14.20, AMWTP Training Implementation Matrix
- AMWTP emergency procedures.

## **D.3 Safety Analysis Process**

### **D.3.1 Introduction**

The safety analysis process for the Advanced Mixed Waste Treatment Project (AMWTP) is developed incorporating the necessary requirements to provide a level of safety assurance for workers and the public, which is also acceptable to regulators.

The purpose and objectives of the safety analysis process are as follows:

1. To define the safety basis and commitments for design, procurement, construction, and operation
2. To support management and safety oversight of the AMWTP. To provide a uniform, up-to-date reference on facility safety with which to plan, budget, and manage nuclear operations
3. To provide the primary reference on facility safety for use by project management and oversight personnel
4. To document the safety bases for and commitments to the control of supporting operations.

### **D.3.2 Requirements**

The requirements to be met for the safety analysis program are contained in the following documents.

- ID O 420.D, Attachment III , as modified by DOE Letter, EM-FOAP-06-043, Technical Direction for Documented Safety Analysis Report
- 10 CFR 830, Subpart B, Safety Basis Requirements (1/1/2005)
- 10 CFR 835, Subpart C, Standards for Internal and External Exposure (1/1/2005)

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- 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals (7/1/2004)
- 29 CFR 1926.64, Process Safety Management of Highly Hazardous Chemicals (7/1/2004)
- 40 CFR 302, Appendix B, Designation, Reportable Quantities, and Notification (7/1/2004)
- 40 CFR 355, Appendix A, Emergency Planning and Notification (7/1/2004)
- DOE O 420.1, Section 4.4, Change 1, Natural Phenomena Hazards Mitigation (11/16/95)
- DOE-ID O 420.D, Attachment II, Hazard Categorization Process (07/17/00)
- DOE-ID O 420.D, Attachment III, Evaluation Guidelines for Nonreactor Nuclear Facilities (07/17/00)

10 CFR 830.204(a) requires that DOE approve the methodology to be used for the development of the documented safety analysis. Appendix A to 10 CFR 830 establishes DOE-STD-3009-94, Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports, as one of the “safe harbors” for the development of a documented safety analysis that would meet the requirements of Subpart B, Safety Basis Requirements, of 10 CFR 830, Nuclear Safety Management. The documented safety analysis was developed for the AMWTP in accordance with this particular “safe harbor.” DOE-STD-3009-94 indicates that the documented safety analysis is not intended to address those hazards and risks considered standard industrial hazards, unless they initiate or exacerbate a radiological release. Accordingly, programs that address general conventional safety considerations would fall within the overall project authorization basis. This would include any environmental protection matters beyond those required by Section 3.3.2.3.4 Environmental Protection, p. 47 of DOE-STD-3009-94. ID O 420.D Attachment III, as modified by DOE Letter, EM-FOAP-06-043, Technical Direction for Documented Safety Analysis Report, dated March 27, 2006, specifies INL accident evaluation guidelines for determination of AMWTP safety structures, systems, and components (SSCs) and technical safety requirements.

The AMWTP Technical Safety Requirements (TSRs), derived as part of the safety analysis process, include operational controls and mitigative measures to limit exposure to workers, the public, and the environment in accordance with the requirements of 10 CFR 830; 10 CFR 835, Occupational Radiation Protection; 29 CFR 1910, Occupational Safety and Health Standards; 29 CFR 1926, Safety and Health Regulations for Construction; 40 CFR 302, Designation, Reportable Quantities, and Notification; and 40 CFR 355, Emergency Planning and Notification.

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**D.3.3 Graded Approach**

A graded approach is required by 10 CFR 830.7, which specifies that a contractor must use a graded approach to implement the requirements of 10 CFR 830, document the basis of the graded approach used, and submit that documentation to DOE. As defined in 10 CFR 830.3, graded approach means the process of ensuring that the level of analysis, documentation, and actions used to comply with a requirement in 10 CFR 830 is commensurate with the following:

1. The relative importance to safety, safeguards, and security
2. The magnitude of any hazard involved
3. The life cycle stage of a facility
4. The programmatic mission of a facility
5. The particular characteristics of a facility
6. The relative importance of radiological and nonradiological hazards
7. Any other relevant factor.

The AMWTP M&O contractor documents the basis of the graded approach used and submits that documentation to DOE. As directed by 10 CFR 830.7, the graded approach is not applied to the development of TSRs or the unreviewed safety question (USQ) process.

**D.3.4 AMWTP Safety Basis**

In accordance with 10 CFR 830.202, the AMWTP M&O contractor is responsible for establishing and maintaining the safety basis for the AMWTP. The safety basis for the AMWTP is the documented safety analysis and hazard controls that provide reasonable assurance that the AMWTP can be operated safely in a manner that adequately protects workers, the public, and the environment.

The preliminary safety basis for the AMWTP was established by the AMWTP Preliminary Safety Analysis Report (PSAR), which was approved by DOE in June 1999. The AMWTP PSAR served as the principal safety basis for the decision by management and regulators to authorize procurement and construction of the AMWTP facilities.

The documents that comprise the current AMWTP Safety Basis are the following:

- Documented Safety Analysis (DSA) and changes, conditions, or hazard controls directed by the Department of Energy (DOE) (such as via the Safety Evaluation Report) between revisions of the DSA.
- The Technical Safety Requirements (TSRs)
- Unreviewed Safety Question (USQ) screens and determinations.

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The accident analysis documented in the preliminary safety analysis report provided the basis for designating candidate safety structures, systems, and components. Natural phenomena events that could potentially initiate accidents were considered in the accident analysis according to the requirements in DOE O 420.1, Facility Safety, and guidance in related DOE standards for natural phenomena hazards mitigation (see Section D.3.12).

The PSAR covered the entire project scope, including waste retrieval, stewardship, storage, characterization, treatment, and shipping. The result of this preliminary assessment was that AMWTP was classified as a Hazard Category 2 nuclear facility. No distinction was made between buildings or areas within the AMWTP complex, and no segmentation of buildings or areas was developed. The preliminary safety analysis report also served as the process hazards analysis for construction as required by 29 CFR 1926 (see Section D.3.11).

The term *safety basis* includes the documented safety analysis and hazard controls that provide reasonable assurance that a DOE nuclear facility can be operated safely in a manner that adequately protects workers, the public, and the environment. The AMWTP safety basis encompasses the documented safety analysis, the TSRs, and any facility-specific commitments made to comply with DOE requirements, the DOE safety evaluation reports (SERs), and the USQ process.

The term *documented safety analysis* means a documented analysis of the extent to which a nuclear facility can be operated safely with respect to workers, the public, and the environment, including a description of the conditions, safe boundaries, and hazard controls that provide the basis for ensuring safety.

The products of this safety analysis process are the following:

- AMWTP-RPT-DSA-02, AMWTP Documented Safety Analysis (DSA), which documents the safety basis beginning with the start of retrieval operations and eventually including HWMA closure. This AMWTP DSA meets the requirements of 10 CFR 830, and is approved by AMWTP M&O contractor line management and DOE-ID.
- AMWTP-RPT-TSR-03, Technical Safety Requirements, which documents the limits, controls, and related actions that establish the specific parameters and requisite actions for the safe operation of AMWTP nuclear facilities. The technical safety requirements are based on the work and hazards in the approved documented safety analysis and are approved by AMWTP M&O contractor management and DOE-ID.
- Unreviewed Safety Question (USQ) Evaluations, which screen proposed changes to nuclear facilities, their implementing procedures and safety analysis documents, and proposed tests and experiments at these facilities. These evaluations are also used to screen and discoveries of potential inadequacies in the safety analysis for these facilities to determine if a safety evaluation is required.

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- Authorization Agreement (AA), which includes Safety Basis commitments, establishes the general terms and conditions agreed upon by AMWTP M&O contractor and DOE for the authorization of operations of the AMWTP.

The AMWTP safety basis documentation will be reviewed annually and updated if necessary. Any annual update will be submitted to DOE for approval.

### **D.3.5 DOE Safety Evaluation Report**

DOE review and approval of the AMWTP documented safety analysis is contained in a safety evaluation report issued by DOE pursuant to 10 CFR 830.207(d). The DOE safety evaluation report may include additional requirements that become part of the AMWTP safety basis.

### **D.3.6 Safety Basis Maintenance**

The AMWTP safety basis documents are maintained in accordance with MP-NSPC-3.4, Safety Basis Maintenance.

The documented safety analysis will be updated as necessary and submitted to DOE for approval to ensure that the information remains current as the facility changes or is modified. The annual update is due on the anniversary of the last submittal. Any unreviewed safety question review or material in support of these approvals is considered an addendum to the documented safety analysis until the information is incorporated into the documented safety analysis as part of the next update.

During operations, any changes approved by DOE, including positive USQ resolution, are treated as immediately effective addenda to the documented safety analysis before that information is formally incorporated into the next update. Positive USQ resolutions (which have been approved by DOE) will be included in the DSA annual update, up to 6 months before submission of this update to DOE. Maintenance of the AMWTP safety basis includes incorporation of any changes, conditions, or hazard controls directed by DOE.

### **D.3.7 Unreviewed Safety Question (USQ) Process**

AMWTP is responsible for establishing, implementing, and taking actions consistent with a USQ process that meets the requirements of 10 CFR 830.203. The concept of the USQ process was established to allow physical and procedural changes and to conduct tests and experiments without prior DOE approval, as long as these changes do not explicitly or implicitly affect the safety basis of the facility. The USQ process provides the flexibility needed to conduct day-to-day operations. Those issues with a potential impact on the safety basis are brought to the attention of management and regulators – thus maintaining the proper safety focus.

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The AMWTP USQ process procedure, MP-NSPC-3.2, Unreviewed Safety Question Process, was submitted to DOE for approval, as required by 10 CFR 830.203(b). The AMWTP USQ process procedure is implemented in the following situations:

- Temporary or permanent change in the facility as described in the existing documented safety analysis
- Temporary or permanent change in the procedures as described in the existing documented safety analysis
- Test or experiment not described in the existing documented safety analysis
- Potential inadequacy of the documented safety analysis because the analysis potentially may not be bounding or may be otherwise inadequate.

The AMWTP has further developed MP-NSPC-3.3, USQ Process Guidance Document, which includes guidance and approaches suggested in DOE G 424.1-1, Implementation Guide for Use in Addressing Unreviewed Safety Questions Requirements, for meeting the requirements of 10 CFR 830.203.

The USQ process requires safety evaluations for changes to the documented safety analysis and facility safety procedures. This includes alterations to the design, function, or method of performing the function of a safety structure, system, or component described in the documented safety analysis either by text, drawing, or other information relied upon for the safety basis. MP-NSPC-3.2 identifies the process for change evaluation in accordance with DOE G 424.1-1A, Implementation Guide for Addressing Unreviewed Safety Question (USQ) Requirements (7/24/2006).

As required by 10 CFR 830.203(e), the AMWTP M&O contractor must obtain DOE approval before taking any action determined by the USQ determination process to be a positive USQ. The AMWTP M&O contractor must submit to DOE an annual summary of the USQ determinations performed since the prior submission in accordance with 10 CFR 830.203(f).

As required by 10 CFR 830.203(g), if the AMWTP M&O contractor discovers or is made aware of a potential inadequacy of the documented safety analysis, it must do the following:

1. Take action, as appropriate, to place or maintain the facility in a safe condition until an evaluation of the safety of the situation is completed
2. Notify DOE of the situation
3. Perform a USQ determination and notify DOE promptly of the results
4. Submit the evaluation of the safety of the situation to DOE before removing any operational restrictions initiated to meet Item 1 of this list.

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DOE personnel responsible for review and approval of documented safety analysis and USQ resolutions are allowed reasonable access to AMWTP facilities and safety analysis documentation.

### **D.3.8 Technical Safety Requirements**

As required by 10 CFR 830.205(a), the AMWTP M&O contractor is responsible for developing technical safety requirements that are derived from the documented safety analysis. These requirements define the conditions, safe boundaries, and the management or administrative controls necessary to the safe operation of a nuclear facility and to reduce the potential risk to the public and facility workers from uncontrolled releases of radioactive materials or from radiation exposures from an inadvertent criticality. Preliminary or candidate technical safety requirements were derived in the preliminary safety analysis report process. The AMWTP technical safety requirements are fully developed, finalized, and approved along with the documented safety analysis as part of the safety basis for the project.

Before use, the AMWTP M&O contractor must obtain DOE approval of technical safety requirements and any change to technical safety requirements (10 CFR 830.205(a)(2)). The AMWTP M&O contractor shall notify DOE of any violation of a technical safety requirement (10 CFR 830.205(a)(3)).

In the development of set points, limits, staffing requirements, and other parameters for consideration in the technical safety requirements, the documented safety analysis serves as the source document. The requirements are derived from the accidents analyzed in the documented safety analysis, including maximum credible releases of radioactive and other hazardous materials, criticality scenarios, and the accidental releases anticipated during the lifetime of the facility.

The accident analysis yields parameters for defining the operational limits necessary to ensure that facility operation is maintained within the bounds assumed in the analysis. Each technical safety requirement specifies the following:

- A clear, concise, quantified requirement
- The facility operating mode the requirement applies to (i.e., operation, shutdown, suspension, etc.)
- The surveillance requirements to verify that the requirement is met
- The actions to be taken to put the facility in a safe condition if the requirement is violated
- The technical basis for the requirement.

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The AMWTP M&O contractor may take emergency actions that depart from an approved technical safety requirement when no actions consistent with the technical safety requirement are immediately apparent, and when these actions are needed to protect workers, the public or the environment from imminent and significant harm. Such actions must be approved by a person in authority as designated by the AMWTP M&O contractor. The AMWTP M&O contractor must report the emergency actions to DOE as soon as practicable (10 CFR 830.205(b)).

Technical safety requirements are kept current throughout the life cycle of the AMWTP. Additional guidance for technical safety requirements is provided in DOE G 423.1-1, Implementing Guide for Use in Developing Technical Safety Requirements (TSRs) (10/24/2000).

### **D.3.9 Basis for Classification of Structures, Systems, and Components**

DOE has established evaluation guideline values for use (exclusively) in classifying structures, systems, and components (SSCs) with respect to their safety importance. The national DOE evaluation guideline value in DOE-STD-3009-94, Appendix A, is 25 rem radiation exposure to a member of the offsite public. As this value is applied to the classification of SSCs, if a structure, system, or component is necessary to meet the evaluation guideline value, than it must be classified as a safety-class SSC.

In addition, DOE-ID has established supplementary evaluation guideline values for the classification of safety SSCs, as modified by DOE Letter, EM-FOAP-06-043, Technical Direction for Documented Safety Analysis Report, dated March 27, 2006, as shown in Table D.3-1. These values are consistent with the guideline value that DOE has established nationally and govern the AMWTP. Events with estimated frequencies beyond those associated with the “extremely unlikely” category (that is, less likely than once in a million years) are “beyond extremely unlikely,” assumed to be incredible, and therefore, beyond those that need to be considered in the design process.

The structures, systems, and components within the AMWTP will be classified to ensure that important items are recognized and accordingly given appropriate care and control. Structures, systems, and components within the AMWTP will be classified into the following safety SSC categories:

- Safety class
- Safety significant
- Other equipment important to safety.

Safety-Class Structures, Systems, and Components means those SSCs, including portions of process systems, whose preventive or mitigative function(s) are necessary to limit radioactive hazardous material exposure to the public, as determined from the safety analysis (10 CFR 830.3). This means that any SSC that is necessary to limit radiological exposures during a potential accident to the offsite public to the evaluation guideline values, as reflected in DOE

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Letter, EM-FOAP-06- 043 would be classified as a safety-class SSC. Safety-class SSCs are identified during the accident analysis portion of the safety analysis process by comparison of the calculated consequences to safety evaluation guideline values.

Safety-Significant Structures, Systems, and Components means those SSCs that are not designated as safety-class but whose preventative or mitigative function(s) are a major contributor to defense in depth and/or worker safety as determined from the safety analysis (10 CFR 830.3). As explained further in DOE-STD-3009-94, defense in depth is an approach to facility safety that builds layers of defense against release of hazardous materials so that no one layer by itself, no matter how good, is completely relied upon to avert damage to the facility, to prevent damage to protective barriers, and to avoid harm to people. SSCs that are major contributors to defense in depth are classified as safety significant. DOE ID O 420.D, as modified by DOE Letter, EM-FOAP-06-043, specifies quantified evaluation guidelines for safety-significant SSCs. Consistent with ID O 420.D Section 2.a, identification of Safety Significant SSCs for worker safety will not be required where a postulated accident is already deemed “extremely unlikely.”

For postulated accidents with severe in-facility worker consequences, such as unshielded criticalities or process explosions, it is seldom possible to identify a consequence-mitigation barrier that will allow meeting any guideline value. Therefore, in accordance with ID O 420.D, Section 2.a, if a postulated accident is “extremely unlikely” (that is potential accidents with a frequency in the range of once per 10,000 years to once per 1,000,000 years, compared with an expected facility lifetime of about 25 years), identification of safety-significant SSCs for the protection of facility workers is not appropriate. Instead, for extremely unlikely events, workers at co-located facilities (e.g., workers in adjacent AMWTP or Radioactive Waste Management Complex facilities) are the focus of safety-significant SSCs.

Other Equipment Important to Safety means equipment that is not designated as safety-significant SSCs or safety-class SSCs, but that provides a function that is a significant contributor to the protection of either the public, co-located workers, or facility workers or is a significant contributor to defense in depth. “Such features (protective barriers, preventive features, or mitigative features) derived from the hazards analysis or safety analysis must not be ignored in managing operations. Such a gross discrepancy would violate the safety basis documented in the documented safety analysis SAR even if the controls are not designated safety class or safety significant because programmatic commitments extend to these SSCs as well” (DOE-STD-3009-94).

Upon SSC classification, as a minimum, the safety function(s) for each such SSC are identified. Safety functions shall be as specific as practical, given the information available at the time. They shall identify the situations, and any specific potential accidents, during which the system may be called upon to perform its safety function(s); identify the specific objective of the system in its role of preventing, detecting or mitigating undesirable occurrences; and identify those performance characteristics that have been specifically relied upon in the documented safety analysis (which may include initial conditions or assumptions regarding the system or its operation).

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Evaluation guidelines are used for comparison of accidents only and are not used for operational events. Operational events are evaluated to ensure that the combination of design features and administrative controls provide for occupational and public doses that are within established limits and ALARA, in accordance with in 10 CFR 835, Occupational Radiation Protection, and DOE Order 5400.5, Radiation Protection of the Public and the Environment.

Insult to the environment is evaluated in an Environmental Impact Statement and handled in accordance with the Environmental Management Program; note that controls designated to protect the public and co-located workers also afford substantial protection to the environment.

### **D.3.10 Classification of Safety Management Programs**

The safety management programs at the AMWTP will be classified to ensure that their importance is recognized and accordingly given appropriate attention and control. Safety management programs at the AMWTP will be classified into the following two categories:

1. Significant safety management programs
2. Other safety management programs.

Significant safety management programs are those programs whose absence or programmatic failure might lead to substantial consequences, require the highest level of control, and hence, will be the subject of Administrative Controls in the TSRs.

Other safety management programs (including general safety programs, construction safety, and environmental protection and permits) do not rise to the level of importance that necessitates the highest level of control (afforded by TSRs) but remain under the internal administrative control of the AMWTP M&O contractor.

### **D.3.11 Process Hazards Analysis**

For commercial facilities containing hazardous chemicals in excess of quantities specified in Appendix A to 29 CFR 1910.119, a process hazards analysis is required by 29 CFR 1910.119 and 29 CFR 1926.64. The AMWTP is not expected to process or handle at one time regulated quantities of any of the toxic, reactive, flammable, or explosive chemicals listed in Appendix A to Section 29 CFR 1910.119. Thus, a process hazards analysis is not required. If regulated quantities of any of these materials are identified at a later date, a process hazards analysis will be performed.

### **D.3.12 Natural Phenomenon Hazards Assessment**

The AMWTP is designed, constructed, and operated so that the general public, workers, and the environment are protected from the impacts of natural phenomena hazards. The AMWTP implementation of requirements for natural phenomena hazards mitigation conforms to DOE O 420.1B, Facility Safety, and associated sub-tier documents such as DOE G 420.1-2, Guide for the Mitigation of Natural Phenomena Hazards for DOE Nuclear Facilities and

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Nonnuclear Facilities, which address all natural phenomena hazards (such as seismic, wind, flood, and lightning). Where no specific requirements or guidance are specified in DOE O 420.1B or DOE G 420.1-2, model building codes such as the Uniform Building Code are used. The series of DOE standards that address natural phenomena hazards (DOE-STD-1020 through 1023) are used as guidance for analyzing natural phenomena hazards in the AMWTP DSA. Natural phenomena design criteria are documented in the AMWTP Project Design Criteria. The AMWTP documented safety analysis analyzes the ability of systems, structures, and components, proposed operations, and personnel to perform their intended safety functions under the effects of natural phenomena. The evaluation of the AMWTP facilities to withstand natural phenomena is based on an assessment of the likelihood of future natural phenomena occurrences. The natural phenomena hazard analysis is conducted commensurate with the graded approach discussed in Section D.3.3. All types of natural phenomena hazards are considered in site planning.

### **D.3.13 Implementing Documents**

The following documents implement the safety analysis process

- AMWTP-RPT-DSA-02, Documented Safety Analysis
- AMWTP-RPT-TSR-03, AMWTP Technical Safety Requirements
- AMWTP Authorization Agreement
- DOE Safety Evaluation Reports
- MP-NSPC-3.2, Unreviewed Safety Question Process
- MP-NSPC-3.4, Safety Basis Maintenance
- DOE approved Unreviewed Safety Question resolutions.

## **D.4 Industrial Safety/Industrial Hygiene (IS/IH) Program**

### **D.4.1 Worker Safety and Health**

The Industrial Safety/Industrial Hygiene (ISIH) program provides line management with the infrastructure supporting the goal of zero accidents through implementation of Integrated Safety Management. ISIH is responsible for implementing laws and regulations and List B (agreed upon standards) requirements for the purpose of minimizing injury and illness to personnel performing work at AMWTP. ISIH requirements are defined in management procedures owned by the Environment, Security, Safety, and Health (ESS&H) organization and are used to identify hazards, develop controls to ensure employee safety, and provide for continuous assessment of program effectiveness. Requirements pertinent to protect worker safety include: 29 CFR 1910 (OSHA General Industry), 29 CFR 1926 (OSHA Construction),

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10 CFR 850 (Chronic Beryllium Disease Prevention Program), and DOE Order 440.1A (Worker Protection Management for DOE Federal and Contract Employees), DOE Order 225.1A (Accident Investigations), and DOE Manual 231.1A, Change 1 (Environment, Safety and Health Reporting Manual). The ISIH staff provides support services to line management that are necessary for safe operation of the AMWTP. Services provided by ESS&H include the following:

- Serving as technical resources to line management for ensuring worker safety. Field verification that ISIH standards are implemented and followed by operations personnel through daily monitoring of operational and maintenance tasks.
- Notifying management of noncompliance occurrences, and suggesting corrective action to mitigate these occurrences
- Developing and modifying ISIH procedures and instructions, as needed based on changes to standards or as a result of improvements/deficiencies identified by employee teams, management assessments, or surveillances
- Tracking and trending accidents, noncompliances, incidents, and behaviors associated with the ISIH program
- Conducting formal and informal inspections, monitoring, and assessments required to maintain safe operation
- Providing technical support when responding to an emergency incident or upset conditions.

A complete implementation description of the ISIH worker protection program is in the program description document PD-ISIH-01, Industrial Safety/Industrial Hygiene Program Description.

#### **D.4.2 Fire Protection Program**

The Fire Protection Program (FPP) establishes the requirements to recognize, evaluate, prevent, and control fire hazards; minimize fire losses; and ensure that Life Safety Codes are maintained at the AMWTP. FPP requirements are defined in management procedures owned by the ESS&H organization, which are used to analyze fire protection hazards, develop and implement controls, and provide requirements for ensuring that work is accomplished to the defined controls that will prevent fire loss. The FPP provides line management with support to minimize: the occurrence of a fire or related event that will threaten the health and safety of employees, the public or the environment, fires that causes an unacceptable on-site or off-site release of hazardous or radiological material that will threaten the health and safety of employees, the public or the environment, unacceptable interruptions of facility operations as a result of fire or related hazards, property losses and operational interruption from fire or related events, and damage to critical process controls as a result of fire or related events. The requirements for fire prevention include DOE Order 420.1B, Facility Safety; National Fire

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Protection Association (NFPA) Standards; and Life Safety Code. The FPP provides support services to line management that is necessary for safe operation of the AMWTP, and includes the following:

- Professional Fire Protection Engineering (FPE) services are provided by a qualified staff FPE. The FPE position also serves as the AMWTP Fire Marshal and is approved by DOE-ID based on a review of qualifications and knowledge of requirements.
- Fire Hazard Analysis (FHAs)
- Fire Safety Analysis (FSAs)
- Abbreviated Fire Assessments (AFAs)
- Life Safety Code interpretations and guidance.

The FPE works closely with the Plant Services organization which is responsible for operability and physical maintenance of AMWTP fire protection systems. The Engineering and Maintenance organization conducts the required inspections and ensures that maintenance is performed when necessary. If impairments are required, the ISIH FPE assists E&M in impairment development and any associated compensatory measures.

BBWI has an established memorandum of agreement with DOE-ID and the INL M&O contractor that allows supplemental coverage, in the event of a fire, which is relayed to the notification systems currently operating at the INL Fire Alarm Center.

A complete implementation description of the Fire Protection Program is included in PD-ISIH-01, Industrial Safety/Industrial Hygiene Program.

#### **D.4.3 Occupational Medical Program**

AMWTP has in place an Occupational Medical Program (OMP) that establishes the requirements to minimize the risk of injury and illness. The OMP requirements are defined in management procedures owned by the ESS&H organization and are used to ensure that a medical evaluation and monitoring program is in place that confirms that hazards are adequately analyzed and controlled, that controls are effective through the absence of disease and injury among AMWTP workers, and that workers are evaluated in advance for performance of work that is prescribed for their job function. The OMP also provides screening for occupational illness and injuries and directs appropriate care, treatment and evaluations through professional medical providers. The requirements for the OMP are 29 CFR 1910 (OSHA General Industry), 10 CFR 850 (Chronic Beryllium Disease Prevention Program), and DOE O 440.1 (Worker Protection Management for DOE Federal and Contractor Employees). The AMWTP OMP provides for worker protection through:

- Baseline health assessments of employees in accordance with OSHA standards and DOE Orders

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- Provision for medical surveillance of employees who may be exposed to hazardous or radioactive material, or who request surveillance.
- Provision for physical exams and medical surveillances that are performed in accordance with OSHA requirements under 29 CFR 1910.120, -1910.134, other substance-specific standards, and statutory requirements, where applicable.
- Voluntary screening and medical surveillances provided to beryllium-associated workers in accordance with 10 CFR 850. Provisions are in place for conducting exams for beryllium associated workers in accordance with the Chronic Beryllium Disease Prevention Program (CBDPP) when beryllium sensitivity is identified through monitoring. The beryllium disease prevention program is described in MP-ISIH-2.7, Chronic Beryllium Disease Prevention Program.

BBWI established a Tri-party Memorandum of Agreement with DOE-ID and the INL M&O contractor that allows AMWTP operations personnel access to ambulance services and medical services at the Central Facilities Area dispensary during emergency incidents. The dispensary provides immediate medical services from staff nurses and physicians. INL Emergency Services evaluates severe injuries/illnesses for transfer to local hospitals.

A full description of the OMP is provided in the program description document, PD-ISIH-01, Industrial Safety/Industrial Hygiene Program.

#### **D.4.4 Stop Work Authority**

AMWTP has implemented Stop Work Authority for all employees through training and an operational procedure, MP-COPS-9.29, Worker Rights and Responsibilities. All AMWTP personnel, subcontractors and vendors have the responsibility and authority to stop work. If at anytime or for any reason an employee has a concern regarding safety or technical correctness of an activity at AMWTP the employee is empowered and obligated to stop work without fear of retribution. Areas for which stop work authority specifically applies are:

- Safety
- Fitness for duty
- Environmental
- Quality
- Procedure correctness
- Conduct of Operations.

Additionally several feedback programs exist for workers to report safety concerns and are described in the program description document, PD-ISIH-01 Industrial Safety/Industrial Hygiene Program.

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## **D.5 Startup & Restart of Facilities**

### **D.5.1 Introduction**

The purpose of the restart/startup process is to ensure that an appropriate level of review occurs before startup or restart of a facility or operational activity; the process provides for performing an initial screening for startup requirements, preparing the startup notification report, developing a plan of action, selection of an appropriate readiness review team, developing an implementation plan, performing a readiness review to assess facility is prepared to commence unrestricted operations. The startup/restart process does not apply to any restarts following routine shutdowns of two months or less where the shutdown was in accordance with procedural requirements, and where no significant changes to the Safety Authorization Basis documents have been made.

The specific process for completion of the startup/restart process is delineated in MP-COPS-9.16, Startup & Restart of Facilities.

### **D.5.2 Requirements**

DOE Order 425.1, Startup and Restart of Nuclear Facilities

### **D.5.3 Startup Notification Report (SNR)**

The SNR is an important element in the management of the readiness review process. The process ensures that AMWTP line management through DOE-ID and DOE-HQ (if applicable) is included in the decision process as to the type of readiness review for every startup or restart applicable that is within the scope of the startup/restart process. The SNR is submitted to DOE within 30 days of the beginning of each calendar year quarter.

## **D.6 Maintenance**

### **D.6.1 Description**

Maintenance is performed within the Plant Services group. The objective of the group is to provide a high level of performance in facility maintenance through safe, responsive, and compliant support in all aspects of maintenance and repair.

The administrative control of maintenance is achieved through the Maximo Computerized Maintenance Management System (CMMS) and maintenance work is controlled through the use of WOs issued through Maximo. WOs are prioritized through the Plan of the Week (POW) forum and passed to the Maintenance Planners who then plan and schedule the work. Work can never be performed in the field without the correct safe work control processes as defined in Section D.16 of this document.

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There is a clear distinction between what is considered to be routine maintenance and what is considered to be a change. Routine maintenance activities repair and correct the normal degradation of SSCs to ensure that the SSCs remain operable and can perform the function for which they were designed. Examples of routine maintenance activities include calibration, refurbishment, replacement with an equivalent component, and housekeeping. In this sense, routine maintenance activities ensure that the scope, requirements, and assumptions of the authorization basis are met. Ideally, routine maintenance activities simply maintain SSCs to perform their authorized function and cannot impact the authorization basis for a nuclear facility when properly maintained. Routine maintenance activities do not require review under 10 CFR 830.203, Unreviewed Safety Question Process. However, some maintenance activities may constitute changes to SSCs that can impact the scope, requirements, and assumptions of the authorization basis, such as allowable outage times, permissible mode conditions, and reduction in redundancy for SSCs removed from service for maintenance. Such changes can alter the function of an SSC in a way that is not addressed or enveloped by the current safety basis or that might inadvertently violate a Technical Safety Requirement (TSR). To ensure the appropriate review and application of the USQ process and environmental requirements, all proposed changes to SSCs must be appropriately identified and processed through the AMWTP change control process in accordance with MP-CD&M-11.1, Change Control.

All maintenance activities are controlled under MP-CMNT-10.1, Maintenance Management, and the flow-down instructions. This suite of documents provides the set of controls in accordance with DOE O 433.1, Maintenance Management Program for DOE Nuclear Facilities.

**D.6.2 Source Requirement Documents and Implementing Procedures**

- DOE O 433.1 Maintenance Management Program for DOE Nuclear Facilities

**D.6.3 Implementing Procedures**

- MP-CMNT-01-IM Conduct of Maintenance Requirements Implementation Matrix

**D.6.4 Fire Protection Program**

Fire Protection Program requirements are described in Section D.4.2.

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## **D.7 Training and Qualification Program**

### **D.7.1 Introduction**

The purpose of this section is to describe the training and qualification program, which establishes training requirements for all personnel involved in the construction, operation, maintenance, and technical support of the project. The objectives of the training and qualification program are the following:

- Assign responsibilities and provide requirements for establishing, implementing, documenting, and evaluating the training for employees.
- Commit to the continuing development of employees to ensure safe and quality performance from a technically competent, additionally skilled work force.
- Establish the requirements for the training and qualification of the employees who provide management direction or oversight that could impact the safe operation of the AMWTP.
- Establish training in the continuous improvement systems that enhance safety, quality and reliability for facility operations.

The AMWTP training department manages the training programs for the AMWTP.

### **D.7.2 Requirements**

The requirements to be met for the training and qualification program are contained in MP-RTQP-14.20, AMWTP Training Implementation Matrix.

### **D.7.3 Organizational Structure for Training and Qualification Programs**

Line management is responsible for ensuring personnel are properly trained and qualified to a competency level that promotes consistently safe operations. Training personnel design, develop, and help implement training requirements to meet line management's expectations. The training department is responsible for developing and maintaining the Training Implementation Matrix and the management procedures that support it. The Training Implementation Matrix is approved by DOE. It describes in detail how all training requirements are implemented at the AMWTP.

Technical training is developed using a systematic approach to training. Only qualified personnel, who have been trained as performance assessors, are permitted to perform on-the-job training and assessments. The training department approves course content for technical training courses; ensures that the qualification documents are developed, reviewed, and approved and ensures that records are appropriately maintained. Training records are maintained in a computerized information system to ensure data integrity and to provide easy access for routine operations, self-assessments, and external audits. Training records are retained in accordance with the appropriate AMWTP records management procedures.

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The training organization monitors technical training provided by vendors and subcontractors to ensure that the training meets AMWTP performance requirements. The training organization arranges for specialized classes when classes are not available locally.

The training manager or designee is responsible for reviewing and approving qualification documents, and for procedures relating to training and qualifications. The training manager or designee also establishes the training records system. Additionally, the training manager or designee:

- Ensures AMWTP training meets the requirements of this ESHPOP and other guidance documentation
- Assists in updating job analysis data as positions, procedures, instructions, permits, hazards, or facilities change
- Assists in developing training materials for classes provided by the training organization
- Reviews the training materials prepared by other AMWTP organizations
- Ensures the personnel performing training meet the minimum requirements for their training responsibilities
- Obtains subject matter expert input for written and verbal examinations and assessments
- Ensures an examination bank of questions for use in examinations and/or evaluations is maintained and updated
- Ensures training materials are updated
- Ensures scheduling and notification of personnel for required training and retraining
- Ensures training and qualification records are maintained.

**D.7.4 Subcontract Training Resources**

Training support may be provided to the AMWTP by subcontracted organizations. All subcontractor personnel must demonstrate qualification requirements for the job function to be performed.

**D.7.5 Personnel Selection Requirements**

AMWTP management selects personnel on the basis of their relevant experience and education. DOE Order 5480.20A describes the selection, training, and qualification of operations personnel for DOE nuclear facilities. The Training Implementation Matrix captures these requirements and demonstrates how they are rolled into AMWTP management procedures.

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**D.7.6 Development of Qualification and Certification Standards**

The training department maintains a summary of positions requiring qualification and certification before tasks may be performed. The training requirements for specific positions and tasks within the project are identified by job task analysis.

**D.7.7 AMWTP Training**

The AMWTP training department implements a combination of classroom, computer-based, and on-the-job training to ensure personnel to ensure personnel attain competencies to allow them to perform assigned work efficiently and safely. Training may also include simulator and laboratory training as it applies to the position.

Implementation of training programs consists primarily of activities related to the conduct of training, as well as resource allocation, planning, and scheduling. Implementation requires assigning instructors and support staff, scheduling training and facilities, and conducting the training. Qualified technical personnel assigned by line management, who have completed the appropriate training, are primarily conduct on-the-job performance assessments. Line management is responsible for ensuring that personnel are trained and qualified sufficiently to safely perform their jobs. Training personnel assist in this determination by using Systematic Approach to Training methodologies.

Personnel assigned to provide formal instruction to employees are properly trained and qualified as trainers in accordance with relevant training procedures. Instructors teaching technical material must have a solid understanding of the theories and technologies that are being presented. Personnel who present information at briefings or tailgate training sessions do not have to meet this requirement.

The training organizations use either standardized DOE course material or develop project-specific training materials to fulfill training requirements associated with each qualification package. Training analysis determines the design, development, and implementation requirements that are necessary to ensure effective and appropriate training quality. This process determines learning objectives that are then included in the qualification and/or certification packages for personnel in qualified or certified positions.

Mastery of the learning objectives by the trainees is evaluated. Evaluation methods include oral boards and examinations, written examinations, and task performance assessments. Training evaluation checklists are also developed to provide guidance for on-the-job training performance criteria. Initial and continuing training programs ensure that personnel attain qualification and remain qualified to perform job assignments.

AMWTP personnel receive new employee orientation and training designed to familiarize the employees with the information and protocols necessary to maintain a safe work environment at the AMWTP. The new employee orientation includes such topics as AMWTP description, AMWTP emergency plans, evacuation alarms, radiological health and safety program, industrial safety and hygiene program, fire protection program, security program, operational alarms, quality assurance program, hazard communication program, and the hazards associated with the AMWTP.

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Because of the various tasks and responsibilities of the employees, required training is tailored to each position at the AMWTP. Training is provided for personnel in such job categories as management, administrative, professional and technical. AMWTP technicians and certain specialists receive specialized training in the areas commensurate with their job assignments. This training is required to establish and maintain competency and proficiency in their trade.

Each new employee and all contracted personnel, temporary personnel, and visitors to the AMWTP facilities must complete facility access training and its subsequent examination in order to have unescorted access to the facilities. Any person who has not completed this training must be escorted at all times. In addition, unescorted access to Resource Conservation and Recovery Act (RCRA) permitted mixed waste areas of the AMWTP requires additional training in RCRA waste management, radiological controls, and HAZWOPER.

The AMWTP line managers work with the training manager to determine competency commensurate with responsibility requirements for project personnel. Qualification is defined in terms of education, experience, training, examination, and any special requirements necessary for performance of assigned responsibilities. Certification is a formal process by which senior line management endorses and documents the training and qualification of a person for a certified position. The only certified positions at the AMWTP are Fissile Material Handlers.

Qualification and requalification of technician and supervisor candidates is described in the AMWTP management procedures. Training exceptions, exemptions and extensions are described in the AMWTP Exceptions, Exemptions and Extensions Procedure.

#### **D.7.8 Changes in Training and Qualification Materials**

Changes to training and qualifications materials must be approved by the AMWTP Training Manager or designee. Documentation to support changes includes (a) the responsibility for approval of changes, (b) a description of changes, (c) the reason for changes, and (d) the training requirements. The documentation for changes is retained as part of the course record.

#### **D.7.9 Documentation of Training and Qualification**

The training organization maintains documents and records for positions requiring training, as identified in the AMWTP Training Implementation Matrix. A training database information system stores individual qualification records, training course completion records, and uses the information to produce myriad reports. The training lead is responsible for accurate and complete data entries, training status updates, and the review of records to ensure validity. The training information system provides for the following records:

- Individual Records. Training records on current personnel are maintained and retained in accordance with AMWTP records requirements. Individual training records include, for example, the following information:
  - Employee Position Descriptions (if applicable)
  - Individual training plans (if applicable)

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- Individual training histories of course and qualification completion
  - Completed qualification program checklists
  - Examinations and assessment results
  - Remedial training documentation
  - Copies of current certificates of training or qualification as applicable to the job position
  - Documentation of training equivalency or exceptions.
- Course Records. Course development records are maintained for approved AMWTP technical training courses in accordance with AMWTP training procedures.

In some cases, it may be necessary to extend an individual's certification or qualification, or to except an individual from a specific training or qualification requirement. Line management is responsible for authorizing extensions of training requirements. This authority is not to be used for operational convenience. The AMWTP procedure for training exemptions, exceptions and extensions is approved by DOE. The AMWTP procedure for training exceptions and extensions includes a requirement to obtain written approval from the DOE Operations Office Manager for extensions of certification.

#### **D.7.10 Implementing Documents**

The following documents implement the AMWTP training and qualification program:

- AMWTP Training Implementation Matrix
- AMWTP supporting management procedures.

### **D.8 Environmental Management**

#### **D.8.1 Purpose/Scope**

The Environmental Management System is designed to integrate environmental protection, compliance, pollution prevention, and waste minimization within the company's Integrated Safety Management System.

The current scope of the ESHPOP and the Environmental Management System includes those company activities at the Advanced Mixed Waste Treatment Project that are managed by Bechtel BWXT Idaho, LLC (BBWI). The Environmental Management System applies to all company and subcontractor organizations that implement environmental requirements or that have activities, products, or services that have the potential to impact the environment.

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**D.8.2 Environmental Management Program**

The details of the Environmental Management program are fully described in PD-EC&P-01, Environmental Management Program System Description. This document provides the full basis of the Environmental Management program to include full listing of all requirements and responsibilities and the implementation matrices that flow these requirements down into the implementing documents.

**D.8.3 Environmental Management System Overview**

Figure 2 provides a model that illustrates the components and key steps of the Environmental Management System. More details of the system are provided in the various sections of this program description.

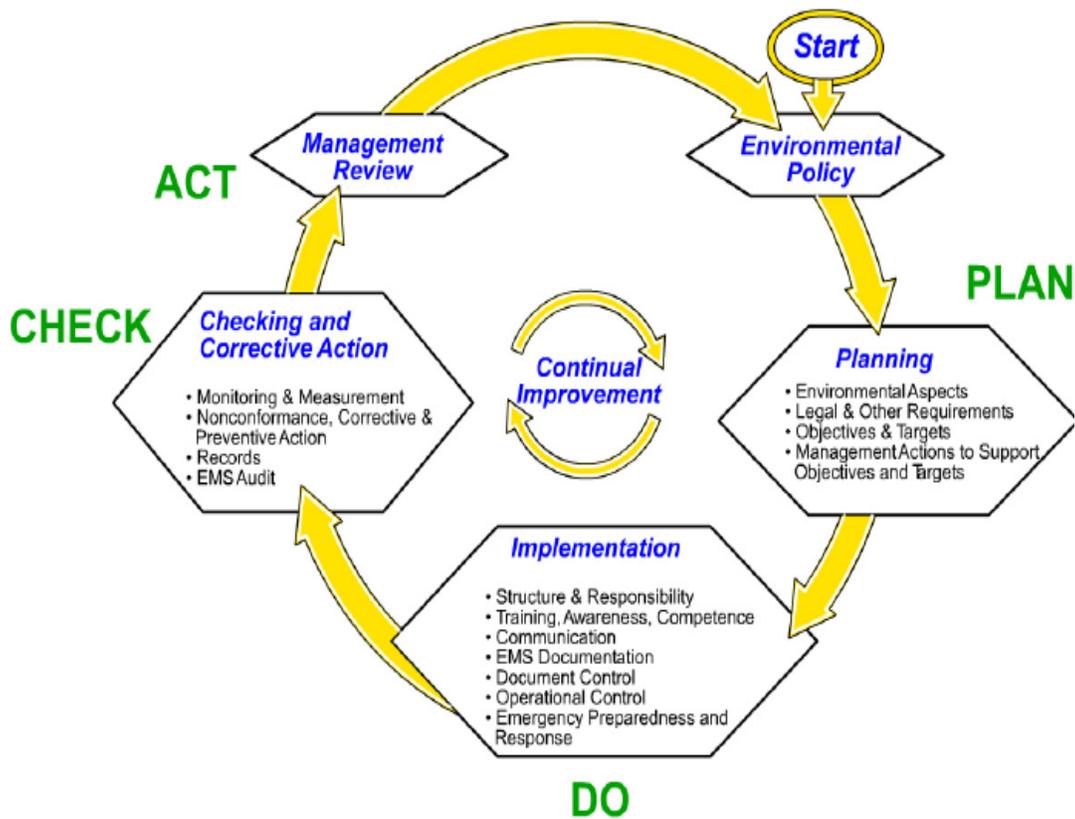


Figure 2. Model of the Environmental Management System.

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## **D.9 Contingency/Emergency Planning and Response**

### **D.9.1 Introduction**

The purpose of contingency/emergency planning and response is to identify equipment, planning, training, and assignment of responsibilities necessary to respond to emergency conditions at the AMWTP. Contingency/emergency planning is required by federal regulations codified by the Occupational Safety and Health Administration (OSHA) (Title 29 of the Code of Federal Regulations).

The AMWTP Emergency Plan/RCRA Contingency Plan (MP-EP&C-12.1) documents the overall process for responding to and mitigating any consequences of operational emergencies that might arise at the AMWTP facilities. The AMWTP Emergency Plan/RCRA Contingency Plan is integrated with the existing Idaho National Laboratory (INL) Emergency Plan/RCRA Contingency Plan, otherwise known as the INL Base Plan, by supplying facility-specific information for the AMWTP to ensure the coordination of notification and response activities. Interface agreements with other INL contractors are negotiated and established in a Service Agreement between DOE-ID, BBWI, and the INL M&O contractor. To ensure consistency and compatibility with existing INL emergency planning activities, DOE-ID reviews and approves the AMWTP Emergency Plan/RCRA Contingency Plan. The criteria for approving the plan is consistent with the requirements in DOE O 151.1C, Comprehensive Emergency Management System, as applicable to DOE-ID and other INL emergency plans/RCRA contingency plans.

### **D.9.2 Requirements**

LST-EP&C-01-IM, Requirements Matrix for Contingency, Emergency Planning, and Control, lists the requirements and implementing documents for contingency/emergency planning and response.

### **D.9.3 Implementing Documents**

The AMWTP Emergency Plan/RCRA Contingency Plan is the document that implements contingency/emergency planning and response.

## **D.10 Continuous Improvement Process, Lessons Learned, and Response to Internal and External Audits**

### **D.10.1 Introduction**

This section describes the processes for ensuring continuous improvement in the safe and reliable operation of AMWTP facilities in all elements of facility management and operation. This section invokes the AMWTP quality assurance program and establishes the AMWTP requirements for assessments and corrective actions.

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BBWI management is committed to the safe and efficient operation of the AMWTP and the self-identification, correction, and prevention of conditions that are adverse to quality or affect continued safe operations. In accordance with 10 CFR 830, "Nuclear Safety Management, Subpart A, Quality Assurance Requirements, BBWI management directs and monitors continuous improvement and early detection of problems by implementing the AMWTP Quality Assurance Program Plan (QAPP) and its project implementing procedures for Assessment, Reporting, and Corrective Action. DOE has reviewed and approved the AMWTP QAPP, and reviews all annual updates for approval. The AMWTP Quality Assurance Program Plan discusses the integration of the QA criteria with safety management as required by 10 CFR 830, Subpart A.

BBWI implements continuous improvement, identifies adverse conditions, and effects comprehensive corrective actions to address the cause of problems. Self-assessment is a basic element of the continuous improvement process because it acknowledges and implements responsibilities for critical self-evaluation and promotes early identification of problems or opportunities for improvement. Self-assessment is a part of the AMWTP safety culture and is a systematic process for the identification and correction of noncompliant conditions. Identified problems are evaluated to determine reportability under DOE's nuclear safety requirements and the Price Anderson Amendments Act of 1988.

The AMWTP QAPP applies to all project operations. BBWI imposes appropriate quality assurance requirements from the QAPP and project implementing procedures in contracts with its subcontractors and suppliers.

Pursuant to 10 CFR 830.121 (b) (3), BBWI will, in the anniversary month of December, either (1) submit to DOE the annual revision to the QAPP, (2) notify DOE that no changes are needed to the QAPP, or (3) notify DOE in writing if delay of the annual submittal is justified.

#### **D.10.2 Requirements**

The List B contractual requirements for continuous improvement and response to internal and external audits are identified and flowed down for implementation in MP-Q&SI-01-IM, Quality Assurance Program Requirements Matrix.

#### **D.10.3 Management Policy on Continuous Improvement**

Various elements of the AMWTP Quality Assurance Program Plan (i.e., management assessment, independent assessment, surveillances, lessons learned, quality improvement, corrective action and root cause analysis) implement AMWTP's commitment to continuous improvement. Internal Quality assurance audit reports and Management self assessment reports, including identification of any noncompliant or unsafe conditions and resulting corrective actions, are available to DOE-ID in order for DOE to exercise its oversight responsibilities. Access to AMWTP assessment reports and resulting corrective actions is provided to DOE-ID as requested to support ongoing oversight of AMWTP activities.

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Observations, issues, and recommendations resulting from external assessments and reviews are evaluated for improvement opportunities or corrective actions, and considered in the scope and planning of AMWTP internal assessment activities.

Continuous improvement is built into other programs and processes in the AMWTP through periodic, routine revisions and upgrades to training programs and operating procedures. Lessons learned are reflected in equipment modifications, procedural changes, and training to ensure safe and efficient operation of the facility. Requirements are identified in contractual documents to subcontractors that provide quality- or safety-significant services or materials to the extent necessary to ensure compliance with requirements.

In recognition of AMWTP responsibilities under the Price Anderson Amendments Act of 1988, management implements assessment programs for self identification, analysis, and reporting of events requiring external reporting under the Act. AMWTP also evaluates and reports conditions and occurrences covered by DOE's Occurrence Reporting Program. AMWTP provides DOE-ID with copies of reports and correspondence given to other regulatory agencies (State of Idaho, U.S. Environmental Protection Agency, etc.) and makes the AMWTP facilities and employees accessible for inspection and interview.

#### **D.10.4 Self-Assessment Program**

BBWI management endorses the concept of self-assessment through management and independent assessments as a means of ensuring continuous performance improvement. To this end, management has established and implemented procedures defining self-assessment requirements. Independent assessments are conducted both as internal and external audits. Management assessment activities are conducted on departmental and functional work activities at AMWTP. The process contains the following elements:

- Purpose and types of assessments
- Organizational activity levels
- Assessment personnel
- Program planning
- Assessment integration
- Assessment agendas
- Performance criteria
- Assessment planning tools
- Assessment conduct

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- Corrective actions and root cause analysis
- Deficiency tracking
- Post-Assessment follow-up.

#### **D.10.5 Lessons Learned**

BBWI is committed to being a learning organization. This commitment involves incorporating best practices and lessons learned into operations with the goal of replicating positive outcomes and minimizing negative outcomes. The AMWTP will share applicable lessons throughout BBWI and the DOE complex as appropriate. Relevant information is passed on to the workforce and actions are initiated and tracked when necessary.

#### **D.10.6 Corrective Action**

BBWI managers are responsible for reviewing the results of internal and external audits and for taking appropriate action to correct deficiencies and implement suggested improvements and lessons learned. Corrective action plans include descriptions of the work to be accomplished, names of responsible persons, and schedules for completion. Management schedules follow-up evaluations to determine the effectiveness of the corrective action and the timeliness of its implementation. For external audits, audit response reports that include corrective action plans are sent to the auditing agency for review and approval. Closeout reports on completed corrective actions and follow-up evaluations are also sent to the external auditing agency. All external audits and corrective action plans are made available to DOE at the AMWTP site. (DOE is considered an external agency as defined in DOE-HNBK-1089-95, Guidance for Identifying, Reporting, and Tracking Nuclear Safety Noncompliance.)

The AMWTP procedures for Conduct of Operations Occurrence Reporting, and Price Anderson Amendment Act (PAAA) Reporting implement the processes for evaluation, categorization and reporting of noncompliant conditions that are determined to be of reportable significance. Conditions that are determined to meet the reportable significance criteria, including investigative and corrective actions taken, are entered into the DOE Occurrence Reporting and Processing System (ORPs) or the PAAA Noncompliance Tracking System (NTS) as applicable to ensure prompt notification to DOE. Investigative and root causal analysis actions are undertaken immediately to determine the necessary corrective actions to prevent recurrence of the reported conditions.

#### **D.10.7 Implementing Documents**

The following documents implement the continuous improvement process, lessons learned, and response to internal and external audits program:

- AMWTP Quality Assurance Program Plan and program quality procedures
- MP-COPS-9.6, Occurrence Reporting
- MP-ISIH-2.43, Lessons Learned
- MP-Q&SI-5.2, Price Anderson Amendments Act Reporting.

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### **D.10.8 Contractor Assurance System**

AMWTP has established management processes to assure compliance with contractual requirements, and monitor the efficiency and effectiveness of project performance. These processes provide for the systematic identification and resolution of program and performance deficiencies to responsible management, document corrective and preventive actions, and sharing of lessons learned across all aspects of operations. The Contractor Assurance Program Description (PD-Q&SI-01), the AMWTP Quality Assurance Program Plan (QAPP), and other AMWTP Programs describe the management processes established.

## **D.11 Document Control and Records Management**

### **D.11.1 Document Control**

The purpose of this process, as documented in MP-DOCS-18.4, is to ensure that controlled documents used to facilitate the operation and maintenance of the Advanced Mixed Waste Treatment Project (AMWTP) are, complete, technically accurate, in compliance with regulatory/contractual requirements and standards, are usable and meet user needs, and are appropriately implemented.

This process includes the activities necessary to enable document owners to manage the creation, change, review, validation, suspension, cancellation/supersedance review, and periodic review of their controlled documents. This process also includes activities for Document Control (DC) distribution and notification of issued documents.

The Document Control procedure implements the requirements of the documents and records Section of QAPP-01, Quality Assurance Program Plan, the Quality Assurance Project Plan (QAPjP), and DOE Order 5480.19, Chapter XVI, Operations Procedures. This process does not apply to the AMWTP Hazardous Waste Management Act (HWMA/RCRA) permit modification, submittal, and review process.

### **D.11.2 Records Management**

This process establishes the responsibilities, requirements, and processes for managing and storing records and QA records generated at the Advance Mixed Waste Treatment Project (AMWTP). In addition to specific requirements cited within the implementing procedure, MP-DOCS-18.2, Records Management, this process implements requirements from QAPP-01, AMWTP Quality Assurance Program Plan.

The Records Management procedure promotes the use of standardized methods for the collection and retrieval of record information. Storage areas are provided for both active and inactive records. Records are moved between active storage and inactive storage in accordance with the implementing procedure for records management. The procedure also controls the migration of the data from one storage medium to another. Records are transferred to archived storage on the basis of records retention requirements.

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## **D.12 Engineering, Configuration Management, and Change Control**

### **D.12.1 Introduction**

The AMWTP engineering and change control processes ensure that contractual requirements and best management practices related to engineering and configuration management are implemented through approved procedures and instructions. The AMWTP engineering function is divided into three organizations: Design Engineering, System Engineering, and Plant Automation/IT. These organizations work closely with the Project Management organization to ensure that the change control processes are appropriately followed, to include prioritization, budgeting, and scheduling of engineering and configuration management related resources and activities. These organizations also work closely with the Operations, Maintenance, and Construction organizations to ensure that adequate engineering support is provided in the form of technically solid design and analysis, repair and outage planning, and post-implementation testing, and also to ensure that configuration management program elements are followed in all phases of work at the AMWTP. By maintaining an effective engineering and configuration management program, the continued operational readiness of AMWTP systems, structures, and components (SSC), and safe operation within contractual and safety requirements, is assured.

### **D.12.2 Design Engineering**

Design Engineering provides engineering design, analysis, and drafting resources in support of continued operations and plant upgrades. The Design Engineering organization is structured so as to be flexible in providing support as either Plant Engineering or Plant Capital Projects. The Plant Engineering group will provide a design and analysis capability in support of day-to-day operations, to include small scale plant modifications. Plant Capital Projects will provide support to the larger scale capital improvement projects. Coordination of the assignment of resources to these efforts will be performed in conjunction with the project management function. Engineering management, such as the Design Manager function, will oversee the performance of engineering design and drafting services and ensure that delivered products meet technical, contractual, and functional requirements.

### **D.12.3 System Engineering**

The AMWTP has implemented a System Engineering Program via PLN-CD&M-001 that meets DOE O 420.1B requirements. Through this program, the AMWTP will assign and qualify Cognizant System Engineers (CSEs) to AMWTP SSCs that are considered to be Vital Safety Systems or to have a potential to impact safety or the environment. The CSE qualification is a two-phased process, with a basic System Engineer qualification followed by a system-specific qualification. Engineering personnel holding the basic System Engineer qualification will be assigned to all AMWTP production and utility SSCs not otherwise assigned a CSE. The primary duties of the CSEs and other assigned System Engineers are as follows:

- To assume responsibility for the configuration management of their assigned SSCs

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- To maintain overall ownership and cognizance of their assigned SSCs
- To be responsible for System Engineering support to operations and maintenance for their assigned SSCs
- To provide assessment of key system parameters and evaluate system performance.

The CSE and System Engineer functions will provide daily support to Operations and Maintenance using ISMS principles. The ISMS implementation elements involving the CSEs are integrated into the Engineering, Operations, Maintenance, Work Control, Procurement, and Quality Assurance procedures.

The System Engineering program is managed by the System Engineering Manager.

#### **D.12.4 Plant Automation/IT**

The role of the Plant Automation/Information Technology (PA/IT) organization is to integrate and strategically deploy technology (automation) solutions to meet project requirements throughout AMWTP. The PA organization provides oversight, planning and management for existing and new technologies. The organization includes the strategic planning and deployment of plant automation components and general information technology (IT) activities necessary to develop, support, and maintain plant operation automation, administrative, and business systems. The PA department is organized to provide around-the-clock technical support to AMWTP operations and business organizations.

Where appropriate, PA personnel will be assigned to act as System Engineers or CSEs, as software associated with several AMWTP SSCs is considered to be important to safety in RPT-DSA-02, AMWTP Documented Safety Analysis (DSA).

The PA organization is comprised of four sub-organizations managed by the Automation Manager: the Integrated Control System, Infrastructure, Data Management System, and Software Testing.

#### **D.12.5 Configuration Management**

Configuration management is an integrated management program for controlling design requirements, facility documentation (including analysis, drawings, and procedures), and physical configuration of SSCs, which includes software, that are important to the protection of workers, the public, the environment, and critical missions and operations. The objectives of the configuration management program are to establish consistency among the three basic SSC relationships of design requirements, documentation, and configuration, and to maintain this consistency throughout the life-cycle of the SSC, particularly as changes are made.

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Fulfilling the configuration management objectives is accomplished through the following key configuration management elements:

- Design Requirements
- Work Control
- Change Control
- Document Control
- Assessments.

These configuration management program elements are integrated throughout AMWTP work processes. By maintaining an effective configuration management program, the continued operational readiness of AMWTP SSCs in support of safe operations within contractual and safety requirements will be ensured.

The AMWTP configuration management program requires that all proposed changes to the plant, including software, must be USQ screened to evaluate possible impacts to the safety basis.

The AMWTP configuration management program is credited as a safety management program by the DSA.

#### **D.12.5.1 Physical Plant Configuration Management**

The AMWTF and other associated facilities making up the AMWTP were designed, built, tested, and commissioned to rigorous design requirements meeting the applicable nuclear, natural phenomena hazard mitigation, and national consensus codes and standards design criteria that were in effect at the time of construction and/or commissioning. This historical design criteria, to include the specification of “codes of record,” is captured in the associated design specifications, design drawings, and the revisions of the Project Design Criteria document that were in effect during Phase I (planning and permitting) and Phase II (construction and testing) of the project. Collectively, these documents comprise the technical baseline of the AMWTP.

The configuration management program will ensure that any changes (i.e., any alteration or addition, temporary or permanent, to the facility physical configuration, facility documentation, or design requirements) from the existing technical baseline are properly identified, reviewed, planned, approved, implemented, tested, and documented. This is primarily done using the Facility Modification Proposal (FMP) process defined in the engineering procedures for change control. The change control process will usually be initiated by the assigned System Engineer for the SSC that is being considered for change. On a graded approach, an FMP may require convening the Facility Change Group (FCG) to evaluate and approve the proposed change. The FCG is a multi-disciplinary group consisting of representatives from the various involved functional support areas and the associated Operations area management team. Following approval of the proposal, the change control process requires that the design and drawing control processes be followed to ensure that a complete modification package is made available for field implementation.

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During Phase III (operations) of the project, current applicable national consensus codes and standards, as well as the DOE regulations specified in List B of the contract, and the current federal regulations as identified in applicable sections of the Code of Federal Regulations, must be applied in determination of design requirements for facility modifications or new construction, in addition to desired functional and operational requirements. In this manner, the design requirements to be controlled under configuration management will envelop the current authorization basis. In support of this, the Project Design Criteria and Phase III Technical Requirements Document (RPT-CD&M-02) will act as the engineering baseline, and will serve as the basis for initiating detailed design activities in support of facility change planning.

All other aspects of the work control and documentation control configuration management elements will be followed as defined in associated procedures, including those for Operations authorization of the field work to commence.

Assessment of actual plant configuration to documented configuration will be performed by the System Engineering organization on a graded approach, with those SSCs indicated by the AMWTP DSA as Safety Significant having highest priority.

#### **D.12.5.2 Software Configuration Management**

Computer software configuration management is controlled via identifying, defining, verifying, and documenting the baselines associated with a software product or application, and controlling the changes to baselines and release of baselines throughout the software lifecycle. Software configuration management is governed by MP-CD&M-11.2, Software Quality Assurance, and its associated flow-down instructions. These instructions provide the process under which software versions are approved and placed under configuration control and then maintained. The level of rigor for application of software configuration controls is based on a graded approach dependant on the system classification level of the software. All proposed software change requests are screened using a software change screening tool and reviewed and approved by the System Change Group. Pending the results of the screening, such as if potential impacts to the facility authorization basis are identified, the FMP process may need to be initiated and completed in addition to the software change process.

#### **D.12.6 Change Control and Project Management**

Many facility modifications processed using the change control process are identified, planned, and executed as projects using the project management procedures. Proposed work, such as modifications, is screened to determine if the work scope meets the criteria for a project. For those activities that screen as projects, the project management procedures for the identification, estimating, planning, approval, and execution of all associated activities are followed. Following the project management process ensures balanced priorities in the selection and completion of projects, cost effective use of project funds and the efficient execution of projects in accordance with DOE-accepted project management practices.

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An important aspect of the project management process is the planning of needed resources, schedules, and associated costs. After projects are initially planned and baselined, the necessary funding is appropriated via the Project Controls (Business, Budgets, and Contracts) practices discussed in Section C of this ESHPOP. When project baseline changes are necessary to add or delete scope, technical requirements, or require schedule changes to perform corrective action, they are approved and authorized via the project change control process. It is important to note that this change control process, although frequently driven by developments in the configuration management change control process, actually bridges the gap between the technical aspects of the SSC modification and the funding aspect of making the modification happen. Therefore, an effective configuration management program is important to support effectively planning and managing modification projects and minimizing the impacts of project changes on project cost, schedule, and scope baselines.

Project execution is typically overseen by the assigned Operations area Project Manager.

#### **D.12.7 Source Requirement Documents and Implementing Procedures**

As identified in RPT-CD&M-11-IM, Engineering Program Requirements Implementing Matrix.

### **D.13 Security**

#### **D.13.1 Introduction**

The purpose of this section is to establish and implement an AMWTP security program consistent with DOE direction, Resource Conservation and Recovery Act (RCRA), and the State of Idaho.

The AMWTP is an unclassified facility containing transuranic (TRU) and low-level radioactive waste, nuclear material reference standards (sealed sources), and sensitive unclassified information (DOE sensitive and BBWI business sensitive). Thus, security measures and procedures are designed to restrict access to the facility to prevent unplanned exposure to radiation, and to protect equipment and sensitive information from disclosure, theft, and sabotage. Security practices are in place for the project to protect BBWI and government property against theft and sabotage and to protect sensitive information and records used at the facility.

The AMWTP is designated a Hazard Category 2 nuclear facility because of the type, form, and quantity of radioactive materials present within the buildings. Access is controlled to areas containing radioactive materials to prevent entry into work areas that might be hazardous to untrained and/or unescorted personnel.

The AMWTP facilities are located within the physical security boundaries of the RWMC at the Idaho National Laboratory (INL). The Security Interface Agreement, via Memorandum Purchase Order C05-000001, details the services and interface relationship between AMWTP and the INL. It establishes the supplemental services to be provided when necessary, by the INL

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Security Services organization operated by Battelle Energy Alliance, LLC (BEA). This includes the protection of national security interests, government property, and personnel at the AMWTP.

Due to the nature of work conducted at AMWTP, the potential exists for the discovery of classified materials during characterization of waste containers. Based upon previous history, items would be classified as Secret Restricted Data. Due to this potential, there are approximately 15 individuals requiring security access clearance authorizations. INL/BEA Personnel Security supports processing requests for access authorizations per the Security Interface Agreement.

BBWI employees are required to obtain INL badges or passes so that they can move freely through unrestricted areas of the AMWTP facilities, RWMC, and INL. AMWTP badging responsibilities are included in the Security Interface Agreement between BEA and AMWTP.

Visits and assignments of foreign nationals are handled in accordance with the AMWTP Foreign National Access procedure.

The AMWTP security program is applicable for all phases (operations and closure) of the project.

#### **D.13.2 Requirements**

The DOE Safeguards and Security directives applicable to the AMWTP are shown in List B of the contract. AMWTP Security has developed several plans and procedures to implement the parts of these DOE directives as they apply to the AMWTP.

#### **D.13.3 Security Planning**

The AMWTP Physical Security Plan, PLN-SCTY-16.8, establishes policies and procedures that describe the requirements, restrictions, and other processes necessary to protect assets, information, and personnel on U.S. government property. The scope of this plan includes those portions of DOE directives associated with the protection of DOE assets connected with planned activities at the BBWI, AMWTP Property Protection Area (PPA). The DOE assets within the facility are Category IV special nuclear material (SNM) items in the form of calibration standards, safeguard-terminated nuclear waste, and DOE property in excess of five million dollars in value. The facility does not contain classified material or SNM quantities greater than a Category IV.

The AMWTP Security Plan is published and approved by DOE-ID and includes the following elements:

- 1.0 Purpose/Scope
- 2.0 Roles and Responsibilities
- 3.0 Integrated Safeguards and Security Management

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- 4.0 Procedures
- 4.1 Classified Mailing Address
- 4.2 Personnel Security
- 4.3 Security Education
- 4.4 Risks and Vulnerabilities
- 4.5 AMWTP Facilities Access
- 4.6 Inspection Procedure
- 4.7 External Release of Photographs and Documents
- 4.8 Security Conditions
- 4.9 Protective Force
- 4.10 Classified Matter Protection – General Requirements
- 4.11 Discovery of Potentially Classified Waste Matter
- 4.12 Accessing the WMF-635 Limited Area
- 4.13 Security Lock & Keys
- 5.0 Definitions
- 6.0 References
- 7.0 Records
- 8.0 Exhibits
- 9.0 Appendices

**D.13.3.1 Visits by Foreign Nationals**

BBWI conducts unclassified visits and assignments of foreign nationals in accordance with the AMWTP Foreign National Access procedure and DOE Order 142.3, Unclassified Foreign Visits and Assignments. Even though the unclassified facility contains only proprietary BBWI information, visiting or assigned foreign nationals must pass through the AMWTP Accountability Station, the RWMC gates, or appropriate access points to in-town facilities. Foreign Nationals must also comply with the requirements imposed by the responsible M&O contractors and DOE-ID for access to secure facilities at the INL site or in town.

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**D.13.3.2 Information Security**

The AMWTP does not handle classified information, but does have custody of sensitive unclassified information, such as: waste container contents and fissile grams equivalent to Plutonium-239, company-proprietary information, and intellectual property related to the processes and costs associated with waste treatment technologies. To maintain control of sensitive unclassified information, BBWI is implementing an Information Security program. MP-SCTY-16.3, Information Security, will address those portions of DOE Order 471.2A, Information Security Program, that apply to information and operations under BBWI control and associated with the AMWTP.

**D.13.3.3 Material Control and Accountability**

The AMWTP Material Control and Accountability (MC&A) Plan, PLN-SCTY-16.9, describes the MC&A program for the control and accountability of nuclear reference material. The AMWTP MC&A Plan addresses those portions of the DOE directives that apply to the control and accountability of nuclear material under BBWI control and associated with AMWTP. The AMWTP has been designated as a Category IV facility with respect to Department of Energy (DOE) safeguards classifications for the possession and control of nuclear material (NM) and SNM. In accordance with the “graded protection” approach referred to in the various DOE orders; the Category IV allows BBWI personnel access to quantities of NM up to the specified limit for a Category IV facility without the need for a DOE access authorization (security clearance). The Category IV nuclear material limits are summarized as follows:

Material Type	Category IV Quantity Limits	
	Pu/U-233	U-235
Pure Products (Level B)	< 200 grams	< 400 grams
High-Grade Materials (Level C)	< 400 grams	< 2000 grams
<b>NOTE:</b> <i>The quantities of NM sources needed in support of the AMWTP radioassay systems is a mixture of Attractiveness Level B and Level C material.</i>		

**D.13.4 Implementing Documents**

The following documents implement the security program:

PLN-SCTY-003, AMWTP Safeguards and Security Management Plan

PLN-SCTY-16.8, AMWTP Physical Security Plan

MP-SCTY-16.9, AMWTP Material Control and Accountability Plan

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## **D.14 Conduct of Operations**

### **D.14.1 Introduction**

The purpose of this conduct of operations section is to establish policies and procedures for the operation of the Advanced Mixed Waste Treatment Project (AMWTP). The AMWTP conduct of operations program maintains quality and uniformity of operations. AMWTP conducts operations using a standard set of operating policies and procedures as required for safe and reliable operation, and as specified by DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities. Additionally, operating performance and trends are recorded, analyzed, and reported to ensure continuing operational efficiency and employee safety (DOE O 210.1, Performance Indicators and Analysis of Operations Information). AMWTP participates in the DOE occurrence reporting program to identify and categorize facility occurrences, determine root causes, and provide appropriate corrective actions (Attachment 2 to DOE M 231.1-2 [8/19/03], Occurrence Reporting and Processing of Operations Information).

AMWTP management is committed to the safe and efficient operation of the AMWTP. Conduct of Operations is viewed as a set of requirements, published and enforced by management, that institutionalize the policies established by law and senior BBWI management directive to ensure rigor in plant operations. The policy categories and subsections published in the DOE Orders are implemented by AMWTP management using MP COPS 9.1, AMWTP Conduct of Operations Implementation Matrix, and other AMWTP documents. MP COPS 9.1 is approved by DOE.

Day-to-day safe and compliant operation of the AMWTP is the responsibility of the Operations Manager and is delegated to direct reports for the Treatment, Waste Handling, Payload Assembly, Shipping, Retrieval, and Characterization activities

### **D.14.2 Requirements**

DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities.

## **D.15 Waste Management Program**

### **D.15.1 Introduction**

The purpose of this section is to describe the AMWTP waste management program. The waste management program addresses primary waste (i.e., legacy waste destined for WIPP or DOE or commercial disposal), as well as other wastes arising from the operation of the AMWTP facilities. The program applies to all AMWTP departmental elements and subcontractors directly involved in waste management activities. The AMWTP waste management program supports a key goal of BBWI to process U.S. Department of Energy TRU waste and alpha low-level mixed waste streams while minimizing the production of non-TRU waste.

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**D.15.2 Definitions**

*Alpha Low-Level Mixed Waste.* Low-level mixed waste containing, at the time of assay, concentrations of at least 10 but less than or equal to 100 nCi/g of waste of alpha-emitting radionuclides with an atomic number greater than 92 and half-lives greater than 20 years. The term *mixed* connotes waste containing both radioactive and hazardous constituents as defined by the Atomic Energy Act of 1954, as amended, and the Resource Conservation Recovery Act (RCRA), respectively.

*Hazardous Waste.* Those materials that are designated as hazardous wastes under IDAPA 58.01.05.005 (40 CFR 261.3), Identification and Listing of Hazardous Waste. Waste materials designated as hazardous only and not radioactive in accordance with Subtitle C of RCRA as referenced in 40 CFR 261, Identification and Listing of Hazardous Waste. The hazardous waste designation typically includes wastes that are hazardous either by listing (F, P, K, or U listings) or by characteristic (reactive, toxic, ignitable, or corrosive).

*Hazardous Waste Constituent.* A constituent that caused the Director or Administrator to list the hazardous waste in IDAPA 58.01.05.005 (40 CFR Part 261, Subpart D), or a constituent listed in IDAPA 58.01.05.005 (Table 1 of 40 CFR 261.24).

*Hazardous Waste Management Unit.* A contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area.

*Low-Level Mixed Waste (LLMW).* Waste containing (a) radioactive constituents as defined by the Atomic Energy Act of 1954, as amended, and not classified as high-level waste, transuranic waste, or spent nuclear fuel or 11e(2) by-product material, and (b) hazardous constituents as defined by RCRA. The term *mixed* connotes waste containing both radioactive and hazardous components as defined by the Atomic Energy Act of 1954, as amended, and RCRA, respectively.

*Low-Level Waste (LLW).* Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, spent nuclear fuel, or 11e(2) by-product material. Test specimens of fissionable material irradiated only for research and development, and not for the production of power or plutonium, may be classified as low-level waste provided the concentration of transuranic elements is less than or equal to 100 nCi/g of waste.

*Mixed Waste.* Waste containing both radioactive and hazardous waste constituents as defined by the Atomic Energy Act of 1954, as amended, and RCRA.

*Primary Waste Treatment Product.* The product produced from the treatment of transuranic and alpha low-level mixed waste by the AMWTP that is the key high volume waste generated during processing.

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*Process-Generated Hazardous Waste* (includes mixed waste and low level waste). Wastes that are newly generated as a result of waste processing, maintenance operations, or equipment change out. Process-generated hazardous wastes are those wastes that are generated from the operation and maintenance of AMWTP facilities. Examples of process-generated hazardous waste may include, but are not limited to, cleaning solvents used during maintenance and rags contaminated with cleaning solvents used during maintenance activities Process-generated hazardous wastes are the responsibility of BBWI.

*RCRA Subtitle D Waste* (Nonhazardous Waste). Waste materials designated as nonhazardous that are neither radioactive nor hazardous by definition, including municipal solid waste, inert construction debris, sanitary waste, etc.

*Secondary Waste Treatment Product*. Those waste treatment products that are generated from processing primary wastes and have special properties not appropriate for inclusion into the primary waste treatment product. Secondary wastes are the products resulting from the treatment of TRU and alpha low-level mixed waste that are not the primary waste products but contain high percentages of TRU or alpha treated waste product.

*Transuranic (TRU)*. Elements with an atomic number greater than 92.

*Transuranic Waste*: Radioactive waste containing more than 100 nanocuries (3700 becquerels) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for: (1) high-level radioactive waste; (2) waste that the Secretary of Energy has determined, with the concurrence of the Administrator of the Environmental Protection Agency, does not need the degree of isolation required by the 40 CFR 191 disposal regulations; or (3) waste that the Nuclear Regulatory commission has approved for disposal on a case-by-case basis in accordance with 10 CFR 61.

*TRU Mixed Waste*: Waste that contains, in addition to more than 100 nCi of alpha-emitting TRU isotopes per gram of waste, with half-lives greater than 20 years, a hazardous component subject to the Resource Conservation and Recovery Act.

### **D.15.3 Responsibilities and Authorities Specific to Waste Management**

The following entities have responsibility and authority specific to AMWTP waste management:

- BBWI is responsible for managing wastes at all AMWTP facilities. Specifically, BBWI is responsible for managing all waste from retrieval through loading of containers on approved transport carriers. BBWI is also responsible for the disposition of non-transuranic process-generated waste, including transportation of low-level mixed waste and low-level waste to disposal locations.
- The INL M&O contractors provide support to the AMWTP by offering certain waste management services.

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**D.15.4 Waste Minimization**

Every effort is made to minimize the volume of process-generated waste at the AMWTP facilities. Waste minimization and pollution prevention goals have been established for the AMWTP to help the project to improve as an environmental steward. Environmental regulations pursuant to the HWMA\RCRA require that generators of hazardous waste “have a program in place to reduce the volume and toxicity of waste generated to the extent that is economically practical.” In addition, RCRA requires that facilities that treat, store, or dispose of hazardous waste have a program for waste minimization.

The AMWTP uses an organized, comprehensive, and continual effort to systematically reduce hazardous and radioactive waste generation. MP-EC&P-7.24, Waste Minimization Plan, provides a written description of the waste minimization program and specifies the activities, methods, and objectives that reduce the quantity and toxicity of waste generation associated with the AMWTP. Furthermore, this procedure also demonstrates compliance with the requirements set forth under HWMA/RCRA and contains the specific and measurable waste minimization targets for the project.

**D.15.5 Waste Stream Identification, Characterization, and Certification**

The identification of waste streams serves as the basis for defining waste management program requirements in this document. The following sections identify the AMWTP waste streams for operations. These sections also address characterization and certification of those waste streams. Primary waste product data that are required to be reported to the WIPP are prepared to be consistent with the WIPP Hazardous Waste Facility Permit, Permit Number NM4890139088-TSDF. AMWTP implements WIPP permit, authorization basis, and transportation requirements through AMWTP procedures, including the following:

- MP-TRUW-8.1, Certification Plan for INL Contact-Handled Transuranic Waste
- MP-TRUW-8.2, Quality Assurance Project Plan (QAPjP)
- MP-TRUW-8.3, Contact-Handled TRU Waste Authorized Methods for Payload Control.

These procedures reference other procedures applicable for the processing and certification of TRU waste for acceptance at WIPP.

All non-TRU waste is characterized to document the compliance with the waste acceptance criteria of the receiving facility.

**D.15.5.1 Waste Streams Generated During Operations**

Numerous waste streams are managed during operations, including TRU, non-TRU, mixed, hazardous, and nonhazardous wastes. The AMWTP manages all radioactive waste in accordance with the applicable requirements of DOE O 435.1-1 in a manner that is protective of worker and public health and safety and the environment. Waste arising from activities has been

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categorized into two general categories: primary waste and process generated waste. Each of these categories has one or more waste stream outputs and dispositions. The following subsections describe these waste categories as generated during operations.

### **Primary Waste**

Primary waste consists of the contact-handled (CH) TRU mixed waste, alpha low-level mixed waste, and mixed low-level waste, located at the TSA. This waste (most of which is CH-TRU mixed waste) consists of heterogeneous mixtures of various solid materials, and forms the bulk of the high volume treatment product. Treatment of primary waste gives rise to most other wastes, including process generated hazardous waste, and small amounts of secondary wastes that may be treated at the treatment facility. Process waste and secondary wastes are managed in accordance with applicable federal, state, and local requirements, including IDAPA 58.01.05.006 (40 CFR 262.11), Standards Applicable to Generators of Hazardous Waste.

### **Process Generated Wastes**

Process operations and activities and the resulting waste streams are as follows:

- Retrieval and characterization activities generate primary waste samples that may be returned to the treatment process. The treatment processes also result in waste, such as high-efficiency particulate air filters, that are returned to the treatment process.
- Routine operations result in the generation of wastes associated with packaging materials. These wastes are typically nonhazardous radioactive wastes, but small quantities of mixed wastes may also be generated. Specific waste streams include overpack drums and lids, empty waste boxes, unsound crushed drums, and drum parts. This waste is categorized as low-level waste, as well as low-level mixed waste, and is shipped offsite for disposal. (Low-level waste may be disposed of onsite at the RWMC/SDA.)
- Operations also result in the direct generation of secondary waste streams at the conclusion of processing cycles. These waste streams are radioactive, mixed, and hazardous. Specific waste streams include free liquids resulting from supercompaction and spent high-efficiency particulate air filters. Small quantities may be treated as special-case waste at the AMWTF.
- Certain activities are needed to provide indirect support to operations and include sampling, radiography, and radiological control support. Wastes from these activities are typically radioactive, mixed, or hazardous. Specific waste streams include excess sample material and decontamination debris, including used swabs or swipes.
- Spills and decontamination activities are anticipated during routine operations. Wastes from these activities may be mixed, hazardous, or nonhazardous and will be handled in accordance with IDAPA 58.01.02.851, and 40 CFR 262.1, 40 CFR 302, and 40 CFR 355. Waste streams include rags and floor sweepings in contaminated and noncontaminated areas, and hazardous chemicals. When practicable, mixed wastes are treated at the AMWTF.

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- Housekeeping tasks also generate nonhazardous liquid wastes from cleaning activities. These are transferred to the RWMC sanitary sewer system.
- The spent materials from painting and reapplication of specialty coatings are managed in accordance with applicable federal, state, and local requirements, including IDAPA 58.01.05.005 (40 CFR 261.3).
- Decontamination showers and sinks are available for use in the process areas to remove contamination. If used, the liquids are captured in a tank that is characterized, as required, for radioactivity content and for hazardous waste constituents. These wastes will be dispositioned per applicable requirements based upon the characterization results. Contaminated protective clothing is returned to the treatment facility process.
- Equipment and vehicle maintenance is conducted to support operations and includes the replacement of worn parts and the addition of fluids and fuel. Waste streams from these activities are typically nonhazardous but can include hazardous wastes. Waste streams include contaminated and worn parts, petroleum products, and recyclable materials. Hazardous wastes are managed in accordance with applicable federal, state, and local requirements.
- Facility maintenance activities include repair and replacement of process equipment and facility structures, and may require minor construction of concrete, steel, mechanical, electrical, and chemical systems. Associated waste streams vary and include radioactive and mixed wastes, hazardous wastes, industrial wastes, and nonhazardous wastes. Specific waste streams include rags, tools, and failed items that are returned to the process, as well as inert construction debris, petroleum products, chemical products, chemical containers, rags, and various recyclable materials that are dispositioned appropriately.
- System component maintenance activities are necessary to ensure that processing equipment functions properly. Wastes associated with these activities may be classified as mixed wastes. However, some wastes may be hazardous or nonhazardous only. Waste streams include worn tool heads from master-slave manipulators, air and water filter cartridge change-outs, oil changes, and parts changes. When practicable, mixed waste items are returned to the treatment facility process. When not practical to be returned to the treatment facility, the waste will be handled using other alternative treatment/disposal options in accordance with federal, state, and local regulations.

**D.15.5.2 Receipt and Characterization of CH TRU Waste**

The AMWTP is designed to process INL CH-TRU waste currently stored at the TSA; however, other waste (non-INL) may also be accepted in the future. Non-INL shipments received by BBWI at the AMWTP facilities are inspected upon receipt for damage or loss. Radioactive material shipments are also inspected for external surface contamination in accordance with Department of Transportation (DOT) standards. Off-site waste is received at the AMWTP in accordance with MP-TRUW-8.40, Non-AMWTP Mixed TRU Waste Acceptance.

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Characterization of CH-TRU waste is in accordance with the requirements of the WIPP Waste Acceptance Plan (WAP), which are implemented in the AMWTP QAPjP, and the WIPP CH-Waste Acceptance Criteria (WAC), which is implemented in the MP-TRUW-8.1, Certification Plan for INL Contact-Handled Transuranic Waste. Certification of payload containers for shipment in the TRUPACT-II and/or HalfPACT are performed under a CBFO-approved QA program that complies with the Contact-Handled Transuranic Waste Authorized Methods for Payload Control.

Characterization of primary waste involves identifying the physical, chemical, and radiological properties of primary waste. Characterization data is used to safely process waste through the AMWTF in compliance with the authorization basis and forms the basis for certification of the waste for disposal at WIPP. Characterization data are maintained in AMWTP records and the Waste Tracking System database files.

Characterization of primary waste includes core sampling; headspace gas analysis; visual inspection, radioassay, and radiography of containers; segregation by waste category, container type, and fissile material content for interim storage in Type II storage modules and subsequent treatment in the Treatment Facility; radioassay in the Characterization Facility; and certification of the primary waste product. Characterization of primary waste is accomplished in accordance with the quality assurance requirements in the WIPP Hazardous Waste Facility Permit, Permit Number NM4890139088-TSDF. Process waste and secondary waste is characterized using either process knowledge or using the same techniques as primary waste as described above. Soil covering the waste containers in the TSA-RE is removed and dispositioned on the basis of the AMWTP Soil Sampling and Disposition Plan.

Upon identification, prohibited wastes (i.e., not accepted at WIPP) are repacked and transferred to Type I or Type II storage modules. Prohibited wastes remain under BBWI control and all options for treatment are further explored.

#### **D.15.5.3 Certification of CH TRU Waste**

The AMWTP certifies CH TRU waste payload containers to the contact-handled waste acceptance criteria identified in MP-TRUW-8.1. The flow-down of applicable requirements to the CH-Waste Acceptance Criteria (CH-WAC) is traceable to several higher-tier documents, including the WIPP operational safety requirements derived from the WIPP CH Documented Safety Analysis, the transportation requirements for CH-TRU wastes derived from the Transuranic Package Transporter-Model II (TRUPACT-II) and HalfPACT Certificate of Compliance, the WIPP Land Withdrawal Act, the WIPP Hazardous Waste Facility Permit, and the U.S. Environmental Protection Agency (EPA) Compliance Certification Decision and approval for PCB disposal.

Individual waste containers in a TRUPACT-II shipping payload assembly may consist of a combination of TRU and non-TRU waste, provided the TRU content of the packages is greater than 100 nCi/g and the waste stream is categorized as transuranic. Therefore, the payload assembly as a whole is certified as TRU waste.

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**D.15.5.4 Characterization of Mixed Low Level Waste**

The small quantities of mixed low-level waste generated at the AMWTP facilities are disposed in accordance with applicable federal, state, and local requirements, including IDAPA 58.01.05.011 (40 CFR 268), Land Disposal Restrictions. Any shipment of mixed low-level waste shall comply with the requirements of 49 CFR 172 and 49 CFR 173, as well as the manifest requirements applicable to hazardous waste at IDAPA 58.01.05.006 (40 CFR 262), Standards Applicable to Generators of Hazardous Waste.

PD-LLW-01, *EnergySolutions* Disposition Project Description, describes the requirements to properly characterize, certify, and dispose of mixed low-level waste. AMWTP completes preliminary characterization for waste containers identified as mixed low level waste candidates eligible for disposition at a selected treatment, storage, and disposal facility (TSDF). Additional characterization may be performed by the selected TSDF to ensure waste meets the TSDF waste acceptance criteria (WAC).

**D.15.5.5 Verification of Mixed Low Level Waste Data**

Data verification activities are performed in accordance with the AMWTP Energy Solutions Disposition Project Description document. This effort will verify BBWI container data for compliance with the receiving TSDF WAC.

**D.15.6 Radioactive and Mixed Waste Management**

The goal of the AMWTP is to process DOE TRU waste and to generate a minimum amount of secondary radioactive and mixed wastes. This is accomplished through a combination of design features and process controls. The AMWTP radioactive and mixed waste management activities include the following elements which are implemented by procedure:

- Radioactive and mixed waste generation
- Radioactive and mixed waste segregation and storage
- Radioactive and mixed waste transport
- Facility HWMA closure
- Effluent monitoring and control.

The following sections describe how these elements are implemented at the AMWTP.

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**D.15.6.1 Radioactive and Mixed Waste Generation and Minimization**

Most of the secondary radioactive and mixed waste generated at the AMWTP consists of empty boxes, samples, swipes, and used equipment and clothing. As much secondary waste as allowable is returned to the treatment process, such as used protective clothing, samples, and used high-efficiency particulate air filters.

The AMWTP uses work practices and design features to minimize the amount of low-level waste and mixed low-level waste generated. The AMWTP radioactive and mixed waste management program contains guidance addressing implementation of technical and administrative controls to reduce the amount of radioactive waste generated.

The AMWTP implements the following recordkeeping for all generated radioactive and mixed waste:

- A formal recordkeeping system that tracks waste generation, treatment, storage, transport, and disposal
- Records generated during the characterization, packaging, certification, and shipment of AMWTP-generated wastes destined for WIPP in accordance with the WIPP Quality Assurance Program Document
- Records of all waste that enters and leaves the facility
- Hazardous waste manifests.

**D.15.6.2 Radioactive and Mixed Waste Segregation and Storage**

All waste collected for temporary accumulation that exceeds the radiological limits established in the AMWTP Radiation Protection Program is stored in a radioactive material area or other properly posted area. All low-level waste is separated from uncontaminated waste, mixed low-level waste, and hazardous waste to facilitate cost-effective treatment and disposal. Mixed waste containers are managed in accordance with applicable federal, state, and local requirements, including IDAPA 58.01.05.006 (40 CFR 262.34), Standards Applicable to Generators of Hazardous Waste.

**D.15.6.3 Radioactive and Mixed Waste On-Site Transport**

Initial transfer of primary waste to the Characterization Facility, the Type II storage modules, and to the AMWTF will be conducted in a safe manner; however, it is not subject to DOT regulations. Neither is transfer of the primary waste product containers from the AMWTF to the Type I and Type II storage modules and to the Waste Aggregation Facility.

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**D.15.6.4 Facility Hazardous Waste Management Act Closure**

In accordance with federal, state, and local requirements HWMA closure of the AMWTP facilities is completed at the conclusion of operations. Closure activities include the removal of hazardous waste and hazardous waste constituents from AMWTP HWMA/RCRA-regulated hazardous waste management units.

**D.15.6.5 Effluent Monitoring and Control**

Radioactive airborne effluents are also generated at the AMWTP facilities during operations. These are minimized through process design, contamination control, and filtering. The AMWTP environmental protection and monitoring program ensures that public dose limits are not exceeded, environmental protection is ensured, and that all releases are adequately monitored and documented.

**D.15.7 Hazardous Waste Management**

Effective hazardous waste management is ensured at the AMWTP through the use of the HWMA/RCRA Permit for Treatment and Storage, AMWTP Emergency Plan/RCRA Contingency Plan, and the AMWTP Quality Assurance Project Plan. These documents describe how hazardous waste at the AMWTP is managed and minimized.

**D.15.7.1 Hazardous Material Usage and Sources**

A material safety data sheet will be available for hazardous materials used at the AMWTP. Hazardous materials are used correctly and completely consumed, as practicable, to avoid leaving partially filled containers of unwanted material. Materials with constituents that could lead to the generation of a hazardous waste when improperly managed are carefully controlled.

Subcontractors are required to remove hazardous materials from the site upon job completion. Onsite inventories of hazardous materials are maintained by AMWTP Environment, Security, Safety, and Health Department in accordance with the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).

**D.15.7.2 Hazardous Waste Generator Determination and Reporting**

The AMWTP is a large-quantity hazardous waste generator (generates over 1,000 kg of hazardous waste monthly) based on the identified waste streams. Pursuant to the Idaho Hazardous Waste Management Act (Idaho Code §§39-4411(4)), an annual report shall be completed and submitted to the INL contractors for inclusion in the site wide INL annual report. The AMWTP also prepares and submits a report to the INL M&O contractor for inclusion in the site wide INL biennial report as required by IDAPA 58.01.05.008 and 58.01.05.009 (40 CFR 264.75 and 265.75). This report is combined with the annual report on even numbered years. In addition the AMWTP also submits a biennial report to the INL M&O contractor for inclusion in the site wide INL RCRA Section 3016 Report.

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#### **D.15.7.3 Hazardous Waste Storage Area Locations**

During AMWTP operations, waste is managed in accordance with IDAPA 58.01.05.006 (40 CFR 262), including using satellite and temporary accumulation areas as necessary. Satellite accumulation areas are strategically placed at locations throughout the AMWTP where hazardous wastes are generated. Ease of use and proximity to waste generation areas are considered in locating satellite and temporary accumulation areas. During operations, all storage areas within the AMWTP boundary (e.g., the Type I and II storage modules) are permitted as required. Collected waste at various points of generation is transferred to approved storage modules before offsite shipment for disposal.

#### **D.15.7.4 Implementation of Toxic Substance Control Act Requirements**

Applicable requirements of the Toxic Substances Control Act of 1986 (TSCA) for polychlorinated biphenyls (PCBs) and asbestos management will be followed and applicable federal, state, and local requirements for mixed waste management will be addressed. The AMWTP Toxic Substances Control Act Implementing Matrix identifies the organizations and individuals responsible for implementing the TSCA requirements applicable to the AMWTP.

#### **D.15.7.5 Handling Procedures and Practices**

During operations, all hazardous wastes routinely generated at the AMWTP are containerized and placed in satellite or temporary accumulation areas. Upon removal from satellite accumulation areas, containers of hazardous wastes are placed in a 90-day temporary accumulation area or otherwise managed in accordance with IDAPA 58.01.05.006 (40 CFR 262), Standards Applicable to Generators of Hazardous Waste. AMWTP personnel inspect the process of collecting, containerizing, and managing wastes in the satellite and temporary accumulation and temporary storage areas to ensure compliance with applicable federal, state, and local requirements. During operations, wastes collected at generation points are transferred to HWMA/RCRA-permitted storage areas for management.

#### **D.15.7.6 Hazardous Waste Certification Process**

All hazardous wastes generated at the AMWTP are certified for disposal off the INL. Each waste stream receives an EPA hazardous waste number after laboratory analysis. Documentation of the waste certification process is strictly maintained by BBWI.

#### **D.15.8 Non-Hazardous (Industrial) Solid Waste Management**

Non-hazardous, or industrial, solid wastes are considered wastes that may be disposed in solid waste landfills or in construction and demolition debris sites. Non-hazardous or industrial solid wastes are generated throughout the life of the project. The INL M&O contractor provides waste dumpsters and pickup services for generated wastes. Arrangements for these services are specified in technical baseline agreements.

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**D.15.8.1 Recycling**

To the greatest extent possible, wastes that can be recycled are collected in separate recycling containers and managed accordingly. Recycling of non-hazardous waste is a best management practice, however the recycling of hazardous waste is required by the HWMA/RCRA permit and is described in MP-EC&P-7.24, Waste Minimization Plan.

**D.15.8.2 Non Hazardous Effluent Waste**

Various non hazardous effluent waste streams are present at the AMWTP and are discharged under onsite permit authority or are managed on the site. These waste streams include emissions from heating and cooling equipment, vents from uncontaminated processing areas in the building, storage tank vents, exhaust from emergency diesel generators, and drains from liquid storage systems.

**D.15.9 Waste Packaging and Shipment**

The AMWTP primary waste product is packaged in containers that can be shipped in the TRUPACT II shipping container or other DOT-approved transport containers, as specified in the WIPP Waste Acceptance Criteria. The AMWTP will control shipping and receiving of hazardous materials to ensure that potential exposure to the public, personnel, and the environment is maintained as low as reasonably achievable and ensures records are maintained to account for such shipments for the AMWTP. The requirements associated with shipment and receipt of hazardous materials to ensure that they are properly packaged, labeled, marked, placarded, and transported per company, state, federal, and international requirements are contained within MP-TRNS-20.2, Shipment and Receipt of Hazardous Materials. The elements involved in preparing and shipping wastes safely and in compliance with requirements are discussed in the following sections.

**D.15.9.1 Labeling and Packaging**

All wastes prepared for offsite shipment are labeled and packaged in accordance with federal, state, and local requirements [49 CFR 172, IDAPA 58.01.05.006 (40 CFR 262)] and specific treatment, storage, and disposal facility waste acceptance criteria.

**D.15.9.2 Handling Equipment Certification and Inspection**

All equipment used to manage wastes, such as forklifts, cranes, and hand tools, are verified as safe and in good working order. Routine inspections are made to ensure that equipment remains safe and in good working order. At the end of its useful life, before disposal, all equipment will be handled in accordance with federal, state, and local regulations.

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**D.15.9.3 Waste Manifests and Shipment Authorizations**

All shipments of hazardous waste shipped directly to a treatment, storage, and disposal facility are accompanied by uniform hazardous waste manifests and applicable HWMA/RCRA and DOT-required labeling. As appropriate, TSCA and DOE requirements are added when wastes contain PCBs or asbestos and/or mixed wastes.

**D.15.9.4 Radiological Surveillance**

All transuranic and low-level waste shipments are surveyed before release from the AMWTP to ensure proper labeling and shipping precautions. All nonradioactive waste shipments are surveyed before release to confirm the absence of radioactive material. Surveys are conducted in accordance with the AMWTP Radiological Protection Program and associated procedures.

**D.15.10 Implementing Documents**

The following documents implement the waste management program:

MP-TRUW-8.1, Certification Plan for INL Contact-Handled Transuranic Waste

MP-EC&P-7.24, Waste Minimization Plan

MP-EC&P-05-IM, Toxic Substances Control Act Implementing Matrix

BNFL-5232-SSDP-01, Soil Sampling and Disposition Plan

MP-TRNS-20.1, Hazardous Material Shipping

MP-TRNS-20.2, Shipment and Receipt of Hazardous Materials

MP-TRUW-8.12 Waste Receipt and Shipping Inspection

MP-TRUW-8.3, Contact-Handled Transuranic Waste Authorized Methods For Payload Control (CH-TRAMPAC)

PD-LLW-01, Energy Solutions Disposition Project Description

MP-LLW-19.1, Low-Level Waste Project Plan

MP-LLW-19.2, Low-Level Waste Certification Plan

MP-LLW-19.3, Energy Solutions Disposition Project

RPT-TRUW-12, AMWTP Waste Stream Designations

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## **D.16 Safe Work Control and Hazard Assessment**

### **D.16.1 Introduction**

Effective work control results from the systematic examination of the scope of a task, identifying hazards that may be present, and assessing their risks during performance. The work control system will define measures and precautions that must be taken to eliminate or control these hazards to minimize risks to personnel, plant equipment, and the environment. Work Control at AMWTP combines three of the five core functions of the Integrated Safety Management System (ISMS), namely Hazard Identification, Hazard Mitigation, and Feedback.

Depending on the importance of the equipment and the complexity of the task, a graded approach will be used to determine the level of detail required. Some tasks will not require detailed instructions and may be performed safely by skilled personnel who have been trained in appropriate work practices. Other tasks will require a formally documented system of permits and other specific instructions and documents. In each case, some or all of the referenced instructions will be used to create a standardized work control approach to provide assurance that work will be performed safely.

### **D.16.2 Work Control Process**

A graded approach is applied as follows:

1. Exempt operations; activities that can be performed safely, based on the qualification of the person performing it and that do not create a hazard to others in the area where the operation is being performed, are categorized as Operations Exempt and do not require a formal work control document to perform them.
2. Approved Method of Work (AMOW); to control routine maintenance work and operational tasks when it is known that conditions are predictable and will remain constant over a long period of time.
3. Request for Permit to Work (RPTW); to control minor maintenance and operational activities against pre-determined criteria. This process may invoke level I LOTO
4. Permit to Work (PTW); to control significant and unique maintenance and operational activities that contain multiple hazards. This process may invoke level II LOTO and other processes such as Confined space or energized work greater than 50 volts.

### **D.16.3 Hazard Assessments**

Hazard assessments have been completed at the general level for all project areas to provide a baseline from which the processes detailed above build onto to create job-specific controls. Additionally the IS/IH and Maintenance programs detail many topic specific programs which also contribute to job controls by direct involvement of Subject Matter Experts in the permit process. For example, working at heights, fire protection, and hoisting and rigging are all detailed separately through the Implementing Matrices. These processes are complimentary and additive to the Work Control Process described above.

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**D.16.4 Source requirement Documents**

DOE O 420.1B, Facility Safety

DOE O 433.1, Maintenance Management Program for DOE Nuclear Facilities

DOE O 5480.19, Conduct of Operations Requirements for DOE Facilities

DOE O 440.1A, Worker Protection Management for DOE Federal and Contractor

10 CFR 851, Worker Safety and Health Program

**D.16.5 Implementing Documents**

PD-COPS-9.18, Work Control

MP-ISIH-01-IM, IS/IH Requirements Implementation Matrix

MP-CMNT-01-IM, Conduct of Maintenance Implementation Matrix

MP-COPS-9.1, Conduct of Operations Implementation Matrix

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## **PART E Maintaining an Approved ISMS**

The provisions of 48 CFR 970.5223-1 require DOE and contractor actions to continuously maintain the integrity of the ISMS and to generate revisions as scheduled by the Contracting Officer. BBWI and DOE-ID are responsible for ensuring that the approved ISMS Description, PD-ISM-01, is controlled by an effective feedback and improvement process so that it remains current.

The intent of maintaining the integrity of ISMS is to ensure that work continues to be conducted efficiently and in a manner that protects the health and safety of the workers, the public, and the environment. To meet this intent, compliance with current requirements and maintenance of the Authorization Basis and Worker Protection Programs must remain up to date and effective. Contractor Assurance Program feedback and continuous improvement processes are used to ensure that these aspects of the system receive structured review and analysis providing ongoing system maintenance and process improvement.

### **E.1 ISMS Maintenance**

Throughout the year, BBWI applies key processes inherent in the ISMS infrastructure to maintain and improve the effectiveness of ISM. Requirements management, CCR, and authorization bases upgrades are processes that maintain the ISMS and are carried out continuously.

Functional area, management, and independent assessments of the Company's functional support programs, key ISMS processes and associated implementing documents; ESS&H and QA performance; and potential system impacts are performed throughout the year as part of the annual AMWTP assessment schedule. These assessments, combined with the Lessons Learned process offer additional mechanisms to provide feedback for improving the overall ISMS. Trending, and reporting of safety performance objectives, performance measures, and commitments are the tools for measuring system effectiveness.

Using assessment results and other data from the processes identified above, an annual evaluation is conducted to determine the status of implementation, integration, and effectiveness of the ISMS. Annually, in the fourth quarter (fiscal) or as directed by the Contracting Officer, the results of the evaluation are documented and submitted to DOE. The ISMS Description Document, PD-ISM-01, is also updated if needed, and submitted based on the results of the evaluation process. The evaluation report summarizes the results which could include the following examples:

- actions taken to evaluate system effectiveness,
- status of functional area programs,
- status of key ISMS processes and associated implementing documents,
- ESS&H QA performance since the last evaluation,

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- progress in achieving safety performance objectives,
- success in completing safety performance commitments,
- resolution of issues from previous ISMS evaluations,
- assessment findings,
- any events that have occurred,
- Lessons Learned,
- status of regulatory compliance,
- employee safety concerns handled through the HR Employee Concern Program or Employee Safety Improvement Team,
- evaluations of impacts from any significant changes in organization, budget, processes, activities, etc.

The SEC will review the results of the annual evaluation and assign responsibilities for taking action to address all the identified issues, areas needing improvement, training needs, and performance commitments.

## **E.2 Safety Performance Objectives, Measures, and Commitments**

The SPOMC is revised and submitted to DOE for review and approval annually as part of the annual ISMS evaluation requirement. The indicators are aligned around the AMWTP mission and goals, and developed from results of the annual ISM maintenance and Contractor Assurance assessment processes, to provide meaningful measurements of efficient, compliant, and safe production operations. All indicators utilize worker involvement and are reflected by leading metrics using KEYS and the ESIT.

The indicators reported are a direct reflection of the key ISM element of performing work within the controls. Industrial, environmental, and radiological safety events are tracked and analyzed on a predetermined reporting schedule to help identify trends in support of continuous improvement.

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**Appendix A**  
**AMWTP Position Roles and Responsibilities**

**Office of the President**

**President and General Manager** is the project manager and is responsible for the following:

- Ensuring the safe and compliant execution of work throughout the project
- Ensuring safety and health programs are in place and safety and health is integrated into all project activities
- Ensuring that contract deliverables meet requirements
- Providing leadership, direction, and strategic management of AMWTP activities
- Ensuring that AMWTP activities conform to the Prime Contract; leads activities that affect DOE-ID contractual issues and obligations
- Providing direction for long-term financial and overall AMWTP performance strategy
- Having final authority for operating plans, management, and integration decisions
- Directing AMWTP management resources
- Developing and ensuring implementation of AMWTP policies
- Ensuring that approved work procedures are available to appropriate personnel
- Interfacing with DOE, DNSFB, and stakeholders regarding the AMWTP project

**Legal**

**Legal Counsel** is responsible for:

- Ensuring the safe and compliant execution of work throughout the project
- Ensuring safety and health programs are in place and safety and health is integrated into all project activities
- Providing counsel to BBWI management on legal and regulatory issues, including, but not limited to ESS&H; employment; procurement; contracts; and disputes

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- Advising BBWI management of potential legal risks and liabilities to BBWI and identifies options to avoid or minimize those risks
- Assisting in the development of strategies for BBWI to achieve and maintain compliance with all applicable federal, state, and local laws; DOE directives and orders; contractual provisions; and other applicable requirements.

### **Communications**

**Communications Manager** is responsible for:

- Ensuring the safe and compliant execution of work throughout the project
- Maintaining an external communication program to reach local and regional officials, community members, the media, and the general public
- Providing employee feedback mechanisms for employee issues
- Providing support to the DOE's Public Affairs program
- Coordinating responses to external and internal inquiries, assisting in planning and conducting plant tours, and representing BBWI within the community
- Providing leadership, direction, integration and management of communications (e.g., employee communications, media relations, governmental relations, community relations, and emergency communications) at the AMWTP
- Ensuring effective integration of all applicable DOE and Bechtel BWXT Idaho policies and procedures into Communication work activities
- Establishing, maintaining and providing oversight of cost-effective, compliant communication systems and processes at AMWTP
- Assisting the Office of the President in establishing and maintaining strategic relationships with stakeholders and interested members of the public
- Assisting the Office of the President and management with employee communication activities
- Ensuring communication processes are aligned with other management systems and are deployed consistently at AMWTP.

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**Six Sigma**

**Six Sigma Manager** is responsible for:

- Ensuring the safe and compliant execution of work throughout the project
- Providing Six Sigma expertise, along with standardized tools and methodologies, to AMWTP operations and programs
- Coordinating and delivering Six Sigma training
- Coordinating selection of Six Sigma resources, including Yellow Belts, Green Belts and Black Belts
- Coordinating identification of improvement opportunities and assisting managers in development of business cases for Process Improvement Projects (PIPs)
- Providing Black Belt support for working PIPs and mentoring Yellow Belts
- Tracking and reporting cost savings and PIP results to Bechtel Corporate and AMWTP management
- Coordinating risk identification and management.

**Plant Operations**

**Vice President and Plant Manager** is responsible for:

- Ensuring the safe and compliant execution of work throughout the project
- Directing resources necessary to maintain the Documented Safety Analysis
- Ensuring safety and health programs are in place and safety and health in integrated into plant activities
- Providing leadership and direction for plant operations
- Interfacing with DOE, DNSFB, and stakeholders for matters relating to the plant
- Safety, compliance and operational aspects of the plant
- The safe, effective production of acceptable waste packages for disposal at WIPP:
- Leading plant organizations and provides operations planning and strategies

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- Ensuring conduct of operations for all project activities
- Hiring, training, and developing facility work teams
- Ensuring that AMWTP's staff is adequate to support assigned mission(s).

**Operations Manager** is responsible for:

- The safe, efficient production of acceptable waste packaged for disposal at WIPP
- Ensuring planning and execution of the WIPP certification program
- Ensuring the principles of ISM are applied to all work planning, control, and execution
- Applying the ISM core functions and guiding principles
- Ensuring clear lines of authority, responsibility, and communication are established, defined, and maintained, and that these relationships are documented in the form of organizational charts and employee position descriptions for key personnel
- Ensuring that all members of the work force, including subcontractors, conducting work at the AMWTP are properly trained
- Certifying official for all certified technicians and the qualification authority for the team leads
- Ensuring that the training program is administered, evaluated, and improved to maintain currency, consistency, and applicability to facility configuration
- Establishing and maintaining a consistent infrastructure to support business objectives
- Implementing the goals and expectations of the Vice President and Plant Manager for achieving safe and efficient operations
- Practicing processes used for the planning of work that will be performed
- Providing senior management oversight for AMWTP operations.

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**Treatment Facility Production/Operations Manager** is responsible for:

- Overall management of operations
- Managing the safe and compliant execution of Treatment Facility production operations of the AMWTP under senior management direction including the planning, scheduling and performance of all operations activities
- Directing the execution of production priorities
- Ensuring the Operations Manager is notified of all abnormal events associated with Treatment Facility activities, fact-finding meetings of such events are conducted, and promptly notifies Senior Management when unplanned or unexpected event(s) occur
- Assisting in the training, assessment, and the development of others to appropriate standards
- Ensuring that all Treatment Facility Operations are in compliance with both regulatory and company policies and procedures
- Serving as primary point-of-contact for Treatment Facility production status
- Appointing a Startup/Restart Project Leader at the time a new activity, startup, or restart is identified
- Providing senior management oversight for Treatment Facility activities
- Ensuring Nuclear Facility Managers have the necessary training and qualifications (competence commensurate with responsibilities)
- Developing and implementing policies and procedures to provide clear roles, responsibilities, accountability and authority are defined and maintained for Nuclear Facility Managers
- Assisting Line Management with issues resolutions and deficiency correction associated with Nuclear Facility Management and Authorization Basis implementation/compliance
- Performing assessments of Authorization Basis implementation and compliance to provide continuous improvement and support operational excellence
- Performing periodic field observation of activities to verify compliance with approved procedures and requirements and providing feedback to line management on areas identified for improvement
- Providing senior management oversight for AMWTP operations.

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**Non-Facility Production/Operations Manager** is responsible for:

- Managing the safe and compliant execution of Non-Facility production operations of the AMWTP under senior management direction including the planning, scheduling and performance of all operations activities
- Directing the execution of production priorities
- Ensuring the Operations Manager is notified of all abnormal events associated with Non-Facility activities, fact-finding meetings of such events are conducted, and promptly notifies Senior Management when unplanned or unexpected event(s) occur
- Assisting in the training, assessment, and the development of others to appropriate standards
- Ensuring that all Waste Handling, Payload Assembly, Characterization, and Shipping Operations are in compliance with both regulatory and company policies and procedures
- Serving as primary point-of-contact for Waste Handling, Payload Assembly, Characterization, and Shipping production status
- Appointing a Startup/Restart Project Leader at the time a new activity, startup, or restart is identified
- Providing senior management oversight for Non-Facility activities
- Ensuring Nuclear Facility Managers have the necessary training and qualifications (competence commensurate with responsibilities)
- Developing and implementing policies and procedures to provide clear roles, responsibilities, accountability and authority are defined and maintained for Nuclear Facility Managers
- Assisting Line Management with issues resolutions and deficiency correction associated with Nuclear Facility Management and Authorization Basis implementation/compliance
- Performing assessments of Authorization Basis implementation and compliance to provide continuous improvement and support operational excellence
- Performing periodic field observation of activities to verify compliance with approved procedures and requirements and providing feedback to line management on areas identified for improvement
- Providing senior management oversight for AMWTP operations.

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**Deputy Production/Operations Manager** is responsible for:

- Acting as an alternate for the Production/Operations Manager
- Acting as the CCP Subcontract Technical Representative (Non-Facility Production/Operation Deputy)
- Supporting the Non-Facility/Production Manager responsibilities.

**Nuclear Facility Managers** (all) are responsible for:

- The safe and compliant operations of the Nuclear Facilities
- Managing the operational activities associated with treatment and characterization of mixed wastes stored at the AMWTP for shipment to the Waste Isolation Pilot Plant (WIPP)
- All equipment, structures, system, components, activities, processes, and personnel in the buildings and grounds associated within their area(s) of responsibility, to assure the safety of the workers, the public, the environment and the facility
- Ensuring safety basis documents are understandable, current, accurate, and that all activities conducted within their area(s) of responsibility are covered under the safety basis documents
- Ensuring that the requirements of the safety bases are fully implemented through the use of project procedures and engineered features
- Ensuring all work at AMWTP is performed in compliance with the Authorization Basis, Conduct of Operations, and Conduct of Maintenance
- Ensuring compliance with AMWTP Environmental, Security, Safety, Health, and Quality Assurance Programs
- Approving work in their areas of responsibility
- Precludes any work from being performed that is not appropriately planned
- Ensuring Un-reviewed Safety Question (USQ) determinations are performed for proposed changes or newly discovered information
- Executing the requirements of MP-COPS-9.6, Occurrence Reporting, for events associated with their respective areas
- Providing procedures that are understandable, current, and comply with appropriate company manuals

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- Attending daily and weekly planning meetings in which detailed daily and weekly schedules are developed and approved
- Reviewing and approving all planned work in areas of responsibility
- Providing direction to matrixed employees from Rad Safety, ESS&H, Maintenance, and QA Support
- Ensuring that all operations personnel assigned to Operations are trained and qualified to perform their work.

Shift Managers (all) are responsible for:

- Managing the safe and compliant day-to-day operations of the AMWTP as assigned
- Assisting the NFM in executing the requirements of MP-COPS-9.6 for events associated operations
- Authorizing the start of work on Class-I Safety Significant Components operations
- Authorizing the post-maintenance testing following maintenance on Class-I Safety Significant Components operations
- Ensuring that required notifications for environmental releases are made associated with operations
- Assigning work priorities for assigned personnel
- Ensuring operations are conducted in accordance with the company conduct of operations requirements
- Ensuring all activities are carried out in accordance with approved operating procedures, including work control procedures.

Shift Team Leads (all) are responsible for:

- Supervising the day-to-day operational activities under the direction of their respective Shift Manager whenever any of their processes are in progress
- Promptly notifying the Shift Manager when unplanned or unexpected events occur and taking actions for Technical Safety Requirements (TSR) violations, as required
- Releasing the start of work on Class-I Safety Significant components operations

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- Supervising activities of assigned technicians
- Providing work direction and leadership to their personnel and ensure safe execution of work
- Ensuring execution of work follows procedural requirements and instructions, including work control
- Ensuring assigned personnel have the required training to perform their assigned work and are fit for duty
- Ensuring production work is accomplished in a safe, compliant, and efficient manner
- Assisting Shift Manager in resolving problems related to personnel, training, and schedule compliance
- Interfacing with the planning/scheduling group to ensure proper resources are available for scheduled work
- Reviewing work processes to identify areas for improvement and initiate needed improvements
- Promptly notifying Shift Manager of issues, which effect the timely execution of scheduled production activities
- Conducting job walk-downs, pre-job briefs, and post-job briefs when required by procedures
- Completing daily facility logbooks and rounds sheets review
- Verifying that post-maintenance testing has been completed before allowing the equipment to be returned to service
- Ensuring closeout of maintenance work only after satisfactory completion is verified
- Attending work-planning meetings to assist in coordinating work activities
- Ensuring non-operational personnel in the facilities and/or involved in operational activities conduct their activities in a formal and disciplined manner consistent with management procedures.

Crew Team Leads (all) are responsible for:

- Providing direction to assigned operators for executing the specific operational activities authorized by the STL.

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Operator Technicians (all) are responsible for:

- Performing authorized day-to-day work and ensuring operations are being conducted in compliance with Conduct of Operations requirements
- Promptly notifying their STL when unplanned or unexpected events occur
- Acknowledging ownership of the systems and equipment in their assigned area
- Maintaining cognizance and control of assigned facilities, equipment, and processes in accordance with the requirements of all management procedures
- Conducting activities in accordance with the requirements outlined in management procedures and operations-specific operating instructions per MP-COPS-9.14, Operations Procedures
- Attending pre-brief and post-brief when required and ensure that, at all times, hazards are understood and properly mitigated
- Ensuring turnovers are conducted per requirements of MP-COPS-9.10 Conduct of Operations, Operations Turnover
- Assisting with document reviews and updates.

**Operations Support Manager** is responsible for:

- Supporting assigned operations programs, ensuring integration of all activities
- Performing operations program observations and assessments and developing performance measurements, trends, and indicators to prevent recurring problems when required
- Ensuring all operations procedures are in compliance with both regulatory and AMWTP procedures
- Maintaining Safety Basis requirements implementation matrix
- Administering the AMWTP Lockout/Tagout Program
- Assisting line management with issues resolutions and deficiency corrections
- Providing senior management oversight for AMWTP operations.

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**Operations Support Officer** is responsible for:

- Ensuring all operations procedures in their area(s) of responsibility are in compliance with both regulatory and AMWTP procedures
- Performing operations program observations and assessments and assisting in development of performance measurements, trends, and indicators to prevent recurring problems, when required
- Conducting causal analyses and perform formal root cause analyses as required.

**Plant Services Manager** is responsible for:

- Ensuring safety and health programs are in place and safety and health in integrated into plant activities
- Providing front line support services and expertise to Plant Operations to ensure safe, compliant and cost effective operations
- Managing the AMWTP Maintenance Program
- Managing the AMWTP Work Control
- Managing the System Engineering Program
- Managing and ensuring compliance with Integrated Safety Management, and Conduct of Maintenance
- Managing the AMWTP Master Equipment List.

**Maintenance Manager** is responsible for:

- Providing front line support services and expertise to Plant Operations to ensure safe, compliant and cost effective operations
- Performing detailed planning in accordance with ISMS principles,
- Providing technician manpower in the field to accomplish maintenance tasks
- Maintaining a thorough understanding of policies and procedures governing operations activities of the AMWTP
- Has overall responsibility for providing Maintenance support to the operating organization

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- Providing goals and objectives for maintenance programs and activities
- Providing all mechanical and instrument/electrical maintenance at AMWTP including routine, corrective, preventive, modification, planned, fabrication, and calibration maintenance
- Ensuring that all maintenance personal assigned to AMWTP are trained and qualified to perform their work
- Supporting operations procedure reviews and ensures closeout of maintenance work packages.

Safe System of Work Controllers (all) are responsible for:

- Ensuring the AMWTP is fully compliant to all applicable work control requirements
- Preparing and implementing the AMWTP Work Control Process and coordinating the technical efforts of personnel in the preparation of work control documents
- Coordinating work, outages, intersystem tie-ins, testing, etc., with Operations, Safety, Environmental, and Maintenance
- Acting as liaison with all relevant disciplines during the preparation of job hazard assessments and assigning the appropriate category of work control for the task
- Monitoring and assessing job sites to verify compliance with work control document requirements
- Maintaining a thorough understanding of policies and procedures governing operations activities of the AMWTP
- Ensuring that Request for Permit to Work and Permit to Work documents accurately reflect actual hazards and mitigations for the job being worked.

Maintenance Team Leads (all) are responsible for:

- Supervising the day-to-day AMWTP maintenance activities
- Supervising activities of assigned Maintenance Technicians
- Providing work direction and leadership to their personnel and ensure safe execution of work
- Walking their spaces regularly and involves themselves with the activities of their personnel and facilities

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- Ensuring execution of work follows the requirements of company procedures
- Ensuring assigned personnel have the required training to perform their assigned work and are fit for duty
- Ensuring maintenance work is accomplished in a safe and efficient manner
- Ensuring maintenance technicians comply with all required policies and procedures
- Assisting Maintenance Manager in resolving problems related to personnel, training, and schedule compliance
- Conducting job walk-downs, pre-job briefs, and post-job briefs when required by procedures
- Ensuring closeout of maintenance work only after satisfactory completion is verified
- Teaming with other groups to resolve processes, problems, and repairs.

Maintenance Technicians (all) are responsible for:

- Performing authorized day-to-day work and ensuring that maintenance activities are being conducted in compliance with requirements
- Promptly notifying the Maintenance Team Leader when unplanned or unexpected events occur
- Attending pre-brief and post-brief when required and ensures that, at all times, hazards are understood and properly mitigated in maintenance procedures.

**System Engineering Manager** is responsible for:

- Providing a professional engineering resource to troubleshoot technical problems
- Managing the configuration management in accordance with DOE O 420.1b
- Ensuring the system engineers maintain responsibility for configuration management and design change control for their assigned systems
- Ensuring the system engineers apply engineering principles, theories, and concepts in their work,
- Ensuring the system engineers gain a thorough knowledge of the AMWTP work control process and maintenance procedures

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- Ensuring the system engineers rely on a thorough knowledge of business processes such as integrated safety management
- Requiring the system engineers to qualify for this position under a formal System Engineering Program
- Ensuring that the System Engineering team implements the requirements for configuration management
- Coordinating the provision of System Engineering resources to support the operations organization
- Ensuring System Engineers are assigned to all AMWTP processes
- Ensuring System Engineering staff is competent, trained and qualified for assigned work
- Supporting compliance with Integrated Safety Management, Conduct of Operations, Conduct of Maintenance, and Conduct of Engineering
- Ensuring that the System Engineering management systems and processes are aligned with other management systems and regulatory requirements
- Ensuring work is performed in a safe secure, cost-effective and compliant manner.

System Engineers (all) are responsible for the following:

- Maintaining the configuration management of assigned systems
- Identifying and understanding the documents that constitute the design basis for assigned systems
- Establishing preventive maintenance, inspections and tests necessary to maintain system condition and functionality and ensures these are included in Maximo
- Ensuring that spare parts are available for their assigned systems and tracked in Maximo
- Performing periodic assessment of system condition, to include physical walk downs and review of operating and maintenance history
- Advising the operations organization regarding system condition and performance and needs for repair or modification
- Providing engineering solutions to technical problems within cost, schedule and scope

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- Supporting compliance with Integrated Safety Management, Conduct of Operations, Conduct of Maintenance and Conduct of Engineering
- Maintaining responsibility for configuration management and design change control for their assigned systems
- Applying engineering principles, theories, and concepts in their work,
- Gaining a thorough knowledge of the AMWTP work control process and maintenance procedures
- Relying on a thorough knowledge of business processes such as integrated safety management
- Qualifying for this position under a formal System Engineering Program.

**Subcontract and Custodial Manager** is responsible for:

- Ensuring work is performed in a safe and compliant manner
- Managing the general subcontract workforce on all project areas
- Managing the custodial teams in support of the plant infrastructure activities, including cleaning services, snow removal, and minor maintenance activities
- Managing the budget for subcontract services
- Ensuring that all subcontractors are appropriately qualified.

**Subcontract Technical Representative** is responsible for:

- Ensuring work is performed in a safe and compliant manner
- Managing the general subcontract workforce on all project areas
- Managing the budget and field compliance to the contract for subcontract services
- Ensuring execution of work to the subcontract requirements.

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**Nuclear Safety Manager** is responsible for:

- Maintaining the nuclear safety program (safety analysis and criticality safety)
- Providing the technical expertise in performing the safety analysis and criticality safety evaluations, which includes maintaining the associated safety basis and criticality safety documentation
- Determining the type and extent of safety analysis for proposed modifications to the AMWTP and to its associate operations, using the DOE-approved unreviewed safety question (USQ) process
- Performing the safety basis documentation annual update, as required by 10 CFR 830, Subpart B
- Communicating company Nuclear Safety policy and regulatory requirements to support organizations and the DOE as appropriate
- Ensuring that authorization basis is identified for AMWTP
- Ensuring that the Safety Analysis and the Nuclear Criticality Safety Program is developed and maintained per the regulatory requirements including ensuring effectiveness and efficiency of program operation
- Assisting project organizations in resolving Nuclear Safety compliance issues through the implementation or interpretation of Nuclear Safety and Criticality management policies, guidance or procedures
- Ensuring the development and maintenance of the Safety Basis, including adherence to regulatory requirements
- Negotiating and resolves regulatory issues relating to Nuclear Safety and Criticality Safety
- Ensuring performance of Nuclear Safety and Nuclear Criticality assessment activities including annual audits/assessments and random inspections of facilities to assist in compliance efforts
- Ensuring proper development, implementation, and maintenance of the USQ Program
- Ensuring proper tracking of potential and declared non-compliances, developing recovery plans as appropriate, and ensuring that identified corrective actions are performed
- Maintaining qualified and knowledgeable individuals as part of the Nuclear Safety group
- Providing instruction/training to project personnel regarding Nuclear Safety and Criticality Safety.

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**Criticality Safety Officer** is responsible for:

- Communicating company Nuclear Criticality policy and regulatory requirements to support organizations
- Facilitating requests for and generates Criticality Safety Analyses (CSAs) required to support safe operations within nuclear facilities
- Assisting project organizations in resolving Nuclear Criticality compliance issues through the implementation or interpretation of Nuclear Criticality management policies, guidance or procedures
- Developing, implementing, and maintaining the project safety basis relating to Nuclear Criticality Safety
- Negotiating and resolving regulatory issues relating to Nuclear Criticality Safety
- Performing Nuclear Criticality assessment activities including annual audits/assessments and random inspections of facilities to assist in compliance efforts
- Revising of a CSA, supports implementation of the CSA requirements; this includes maintaining a database of Nuclear Criticality Safety requirements
- Developing and maintaining suite of Nuclear Criticality Safety procedures for program implementation
- Collecting information regarding potential and declared non-compliances, developing recovery plans as appropriate, and ensuring that identified corrective actions are performed
- Maintaining familiarity with the facility CAAS detection documentation and impacts of operational or equipment changes on detection capability
- Assisting in the scheduling, performance, and reporting of assessments and reviews to ensure that the requirements of the safety bases are fully implemented through the use of project procedures and engineered features
- Providing assistance to operations for identifying opportunities for improvement including the Nuclear Safety Program
- Providing instruction/training to project personnel regarding Nuclear Criticality Safety and requirements
- Reviewing applicable project work planning documents for appropriate implementation of Nuclear Criticality requirements.

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Nuclear Safety Engineers/Analysts (all) are responsible for:

- Communicating company Nuclear Safety policy and regulatory requirements to support organizations
- Facilitating requests for and generates analyses for and revisions to the Safety Basis (specifically Documented Safety Analysis [DSA], TSR) documents required to support safe operations within nuclear facilities
- Assisting project organizations in resolving Nuclear Safety compliance issues through the implementation or interpretation of Nuclear Criticality management policies, guidance or procedures
- Developing and maintains the project safety basis relating to Nuclear Safety
- Developing, updates, and maintains the Unreviewed Safety Question (USQ) Program including training, program implementing documents, and qualification of personnel
- Performing Nuclear Safety assessment activities including annual audits/assessments (e.g., USQ) and random inspections of facilities to assist in compliance efforts
- Revising of a DSA/TSR, supports implementation of the DSA/TSR requirements
- Developing and maintains suite of Nuclear Safety procedures for program implementation
- Collecting information regarding potential and declared non-compliances, developing recovery plans as appropriate, and ensuring that identified corrective actions are performed
- Assisting in the scheduling, performance, and reporting of assessments and reviews to ensure that the requirements of the safety bases are fully implemented through the use of project procedures and engineered features
- Providing instruction/training to project personnel regarding Nuclear Safety and requirements
- Reviewing applicable project work planning documents for appropriate implementation of Nuclear Criticality requirements.

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**Project Management Office Manager** is responsible for:

- All projects, as well as account management and production coordination
- Ensuring baselines are established that enable safety and compliance to be integrated at inception of new activities.

**Plant Automation & Information Technologies (IT) Manager** is responsible for:

- Ensuring safety and health programs are in place and safety and health is integrated into plant activities
- Controlling the daily automation operations activities across the AMWTP
- Ensuring automation needs are identified and met. Integration and strategically deploying technology (automation) solutions to meet project requirements
- Providing oversight, planning, and management for existing and new technologies
- Providing around-the-clock (24/7) technical support to AMWTP operations and business organizations
- Participating in developing the plant automation, IT, and communication strategic planning and defining enhancements and upgrades to facilitate the project goals
- Keeping Project Management informed of Plant Automation and IT operations status
- Preparing, implementing, and maintaining an IT Department monthly report to describe progress, plans, priorities, and problems to keep management informed.

**Integrated Control System (ICS) Manager** is responsible for:

- Ensuring support services and development activities are coordinated with their counterparts within other functional and operational organizations
- Supporting the maintenance and development activities associated with repair and modifications to the plant automation systems and interfaces
- Working with the QA organization to ensure appropriate rigor and compliance to procedures and processes are applied
- The operation and maintenance of the hardware and software for the ICS computer systems
- Assisting in providing leadership and training to their staff members.

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**IT Infrastructure Manager** is responsible for:

- Ensuring support services and development activities are coordinated with their counterparts within other functional and operational organizations
- Supporting the IT network and server infrastructure including the Integrated Control System (ICS) and WTS infrastructure on an around-the-clock (24/7) basis
- Providing Helpdesk and desk-side support on the project during normal business hours and provides around-the-clock on-call coverage
- Coordinating software licensing for the project and liaises with the AMWTP Government Group to ensure continual compliance with company procedures and Federal Acquisition Regulations
- The operation and maintenance of all computer systems aspects associated with the AMWTP production process including computer hardware, software, network servers and data routing components
- Managing hardware, software and network engineers, and technicians
- Assisting in providing priorities and training to staff members
- Ensuring that daily support activities are completed in accordance with operational procedures and instructions.

**Data Management System Manager** is responsible for:

- Ensuring support services and development activities are coordinated with their counterparts within other functional and operational organizations
- Performing the development activities associated with all modifications to the project data management and business systems and interfaces
- Working with a SQA specialist, from the QA organization who works with the Software Testing group to align the development and automation processes to the SQA rigor necessary for an automation environment supporting AMWTP operations
- The operation and maintenance of the hardware/software for the DMS computer systems
- Assisting in providing, priorities and training to their staff members
- Ensuring that daily support activities are completed in accordance with operational procedures and instructions.

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**Software Testing Manager** is responsible for:

- Ensuring support services and development activities are coordinated with their counterparts within other functional and operational organizations
- Developing integrated testing
- Coordinates with the Software QA Specialist to oversee offering more timely resolution of software quality issues
- Managing the SQA specialist to oversees the Automation Test-Bed environment and the development process to verify the SQA rigor necessary for an automation environment supporting AMWTP operations.

**Waste Programs**

**Waste Programs Manager** is responsible for:

- Ensuring the safe and compliant execution of work throughout the project
- Ensuring safety and health programs are in place and safety and health in integrated into project activities
- The management and oversight of the activities associated with establishing and implementing the programs required to manage all AMWTP waste streams destined for off-site disposal
- Ensuring the planning, execution, implementation, and coordination of the WIPP certification process for retrieval and facility activities.

**TRU Programs Manager** is responsible for:

- The management and oversight of the activities associated with establishing and implementing the programs required to manage all AMWTP TRU waste streams destined for WIPP disposal.

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**Site Project Office Manager** is responsible for:

- Ensuring that the Site Project Office and AMWTP TRU Programs operate in compliance with all applicable requirements
- Managing all AMWTP TRU waste streams destined for WIPP disposal
- Ensuring work performed at AMWTP is in accordance with the certification plan.

**Level 1 and Level 2 Validation and Certification Manager** is responsible for:

- The management and oversight of the activities associated with implementing and maintaining programs to ensure compliance with data validation and waste stream certification requirements for all TRU waste destined for WIPP disposal
- Development of waste stream profiles based upon acceptable knowledge information
- Validation and verification of data generated during the characterization process
- Management of documentation required to support the process
- Providing support to operations.

**Waste Transport and Certification Manager** is responsible for:

- The management and oversight of the activities associated with implementing and maintaining programs to ensure compliance with waste transportation and certification requirements for all TRU waste destined for WIPP disposal
- Reviewing and certification of data required for entry into WWIS to meet WIPP WAC and TRAMPAC requirements
- Providing the oversight and verification of TRUPACT loading activities to ensure that applicable requirements are met

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**Transportation and Shipping Manager** is responsible for:

- The management and oversight of the activities associated with implementing and maintaining programs to ensure compliance with the waste shipping requirements for all AMWTP shipments
- Reviewing and certification of all shipping documentation
- Shipment and transport vehicle inspections
- Other DOT compliance-related activities.

**TRU Program Production Coordinator** is responsible for:

- The coordination of the activities associated with waste programs and production planning and operations to ensure compliance with the WIPP shipping schedule and associated production-related activities.

**MLLW/LLW Programs Manager** is responsible for:

- The management and oversight of the activities associated with establishing and implementing programs to manage all AMWTP newly generated secondary, non-TRU waste streams
- The management and oversight of all AMWTP legacy waste not destined for WIPP disposal including, but not limited to, the following:
  - Establishing waste profiles
  - Validating container data against acceptance criteria
  - Establishing container profiles
- Shipping AMWTP waste containers for treatment to RCRA Land Disposal Restriction standards for disposal
- Obtaining NTS LLW and MLLW disposal certification
- Establishing and implementing effective single-point accountability for on-site, waste management program for AMWTP newly generated LLW, MLLW, hazardous waste and industrial waste streams.

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**Strategic Waste Planning and Program Support Manager** is responsible for:

- Providing technical and production support to Waste Programs
- Providing planning guidance and direction to the Retrieval, Characterization and Treatment Facility operations organizations
- Implementing the Container Selection Review Board (CSRB) in order to track, report and provide guidance on the disposition of AMWTP waste inventories
- Development and maintenance of a project-wide AMWTP production operations model
- Tracking and reporting the key AMWTP performance metrics
- Planning and coordination for the receipt and treatment of off-site waste
- Coordination, tracking, and implementation for software changes in support of Waste Programs
- Tracking and closeout of corrective actions for Waste Programs.

**Chief Scientist/Scientific Support Manager** is responsible for:

- Providing general and waste-based expert technical support for the AMWTP TRU Programs, AMWTP operations, and MLLW
- Optimizing the AMWTP characterization processes to support required throughputs
- Establishing analytical and radioassay calibration ranges to reduce/eliminate rework
- Regulatory interpretation and development needed for strategic positioning of the AMWTP
- Developing long-term strategies for problematic AMWTP waste forms (no waste left behind).

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**Business Services**

**Vice President of Business Services** is responsible for:

- Ensuring the safe and compliant execution of work throughout the project
- Ensuring safety and health programs are in place and safety and health in integrated into project activities
- The Prime Contract, procurement, suppliers, and subcontractors
- Providing management and administrative support to the Business Services organization including: Accounting, Human Resources, Procurement, Document Control and Training.

**The Controller** is responsible for:

- Establishing, maintaining, and controlling the financial business systems and processes for the company
- Ensuring adequate control of the collection and disbursement of funds
- Providing financial control of company assets and accurately reporting financial results to management and the DOE.

**Accounting Manager** is responsible for:

- Establishing, maintaining, and controlling the financial accounting, payroll, travel, benefits accounting, banking, cost accounting, and internal and external financial reporting for the company
- Ensuring control of the collection, disbursement, and safeguarding of company funds, accounting and financial control of company assets, and accurate recording of revenues and expenditures
- Formulating, presenting, and maintaining the indirect (fringe) accounting activities, including compliance to cost accounting standards and company-disclosed cost accounting practices.

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**Payroll/Benefits Accounting Manager** is responsible for:

- Ensuring proper payment of employees and accurate records of company benefits
- Preparing and overseeing federal government tax reporting including preparation and filing of forms W-2, W-3, 940, 941, 5500, etc.
- Preparing an oversee payments to benefit providers.

**Analyst** is responsible for:

- Performing financial analysis and ad-hoc financial reporting in support of company mission
- Summarizing and preparing company labor / non-labor cost data for use in budget cost reporting
- Ensuring appropriate collections and recording of costs within the financial system.

**Human Resource Manager** is responsible for:

- Training and retaining qualified and diverse employees in accordance with federal and state guidelines
- Developing, implementing, and administering compensation and benefit programs
- Establishing effective and measurable performance goals feedback systems such as annual performance reviews
- Providing confidential and effective means for employee feedback including discussion and investigation of concerns in a timely manner.

**Acquisition Services Manager** is responsible for:

- Providing oversight of prime contract administration activities and personnel
- Maintaining DOE approved purchasing and property management systems
- Directing activities and personnel associated with acquisition of services and materials needed for safe and effective operations
- Establishing and maintaining control of all real property as defined by DOE
- Ensuring control and oversight of fleet management services.

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**Procurement Manager** is responsible for:

- Overseeing personnel responsible for the acquisition of materials and services from external sources in accordance with prime contract requirements and company policies and procedures
- Directing activities associated with the acquisition of materials and services from external sources in accordance with prime contract requirements and company policies and procedures.

**Logistics Manager** is responsible for:

- Overseeing personnel responsible for the acquisition of materials and services from external sources in accordance with prime contract requirements and company policies and procedures
- Directing activities associated with the receipt, inspection, storage, distribution, tracking and disposition of materials in accordance with prime contract requirements and company policies and procedures.

**Prime Contracts Administrator** is responsible for:

- Contract management of No. DE-AC07-99ID13727
- Contract correspondence and correspondence control
- Performance management
- Contract changes
- Contract completion, acceptance and close-out.

**Site Interface Coordinator** is responsible for:

- Managing the service agreements between BBWI and ICP and INL contractors
- Tracking the cost associated with the contracts between BBWI and ICP and INL contractors.

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**Infrastructure Support Services Lead** is responsible for:

- General landlord functions to support AMWTP operations
- Coordinating personnel office moves
- Allocating office space for in-town facilities
- Procuring and excessing furniture
- Coordinating maintenance and custodial services for the office facilities
- Resolving issues associated with the office facilities and utilities, such as security, lighting, heating and ventilation, water, etc.

**Training Manager** is responsible for:

- Providing leadership, direction, integration, and management of training systems and processes and human performance solutions at the AMWTP
- Managing and ensuring compliance with training contract requirements at the AMWTP
- Establishing, maintaining, and managing cost-effective, compliant training systems and processes at the AMWTP
- Conducting performance analysis to ensure that correct interventions (training and non-training) are designed and implemented for performance gaps
- Implementing human performance processes and tools
- Ensuring that the company maintains a continuous improvement posture for ISMS guiding Principle 3 - Competence Commensurate with Responsibility
- Collaborating with ESS&H SMEs, manage, schedule, and deliver compliant, cost-effective, and high quality ES&H training
- Administering and maintaining the company's automated training and qualification records management system
- Providing the company Training Subject Matter Expert (SME)
- Evaluating AMWTP training for quality, application to the needs of the workforce, and compliance with laws, standards, DOE Orders, and company requirements

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- Providing instructional systems design services to all of the AMWTP
- Setting mission, vision, goals, and strategy for Training at the AMWTP
- Ensuring Training organizational alignment with AMWTP business initiatives, vision, and strategy
- Communicating frequently with the AMWTP senior management team, Project Managers and line managers to ensure that timely, cost-effective, needs-based, and mission focused technical training is provided
- Ensuring training systems and processes are aligned with other management systems and are deployed consistently across the AMWTP
- Managing a training program that meets the requirements of DOE 5480.20A
- Ensuring all aspects of training program management including the administration of assigned training personnel, training facilities, equipment, and procedures are implemented
- Ensuring training program effectiveness.

**Document & Records Services Supervisor** is responsible for:

- Ensuring effective configuration management of implementing/instructional documents and drawings
- Establishing institutional controls for managing project records and related deliverables
- Ensuring the proper identification and process requirements for the review and approval of specific documents requiring DOE-ID and DOE-CBFO acceptance
- Supporting real time “on-line” delivery of controlled documents via an electronic database
- Implementing QA requirements for managing QA records, meeting the intent of the AMWTP QA Program
- Supporting the records retrieval and maintenance needs of the project
- Ensuring that the required physical controls are in place to protect project information
- Ensuring that document retrieval efforts are supported to meet project needs and related contractual requirements.

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**Quality Assurance**

**Quality Assurance Manager** is responsible for:

- Ensuring the safe and compliant execution of work throughout the project
- Ensuring safety and health programs are integrated with QA Management processes
- Quality program leadership, assessment, and requirements implementation
- Ensuring the verification and validation of the requirements for characterization, certification, packaging, and shipping of contact-handled TRU waste for disposal at the WIPP facility
- Ensuring the Site Project Quality Assurance Officer (SPQAO) performs the duties as described in the WAP including plan required analysis of characterization results to assure compliance with WAP data quality objectives and quality assurance objectives control
- Ensuring the SPQAO supports to the TRU program staff on quality-related matters
- AMWTP system of performance and compliance based management assessment, independent assessment, and surveillance of AMWTP activities and organizations
- Managing the TrackWise™ Nonconforming Conditions and Corrective Action issues management reporting system
- Evaluating conditions adverse to quality for Price-Anderson Amendments Act applicability and reportability
- Approving corrective action plans, nonconformance dispositions, and verification of actions to disposition or correct conditions adverse to quality
- Providing verification and validation of contact-handled TRU waste to applicable requirements for characterization, certification, packaging, and shipping
- Monitoring performance of AMWTP's subcontractors and suppliers
- Monitoring trends in conditions adverse to quality
- Developing and implementing DOE Contractor Assurance (DOE O 226.1) requirements.

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**Environmental, Security, Safety and Health**

**Environmental, Security, Safety, and Health (ESS&H) Manager** is responsible for:

- Ensuring that environmental, security, safety, and health programs are in place and safety and health is integrated into project activities
- Directing resources necessary to maintain the ESHPOP and environmental permits compliance
- Coordinating, overseeing, and managing technical support functions for environmental permitting and compliance, fire protection, industrial safety, and industrial hygiene
- Preparing and updating ESS&H authorization basis documents and safety procedures
- Documenting and integrating safety and regulatory decisions regarding the AMWTP and its design
- Providing support to design and operations teams in interpreting and applying safety and regulatory requirements
- Providing leadership, direction, integration, and oversight of ESS&H
- Acting as the home organization for ISMS, regulatory issues, ESS&H staff, oversight and feedback on ESS&H performance and matrix management of ESS&H
- Providing technically accurate ESS&H processes and procedures through development, management and implementation of the following programs at AMWTP:
  - A. Environmental programs and management
  - B. Industrial safety/industrial hygiene
  - C. Fire protection engineering
  - D. Radiological control and safety including ALARA
  - E. Occupational health and industrial hygiene (IH)
  - F. ESS&H management self-assessment
  - G. ESS&H training programs
  - H. Lessons Learned
  - I. Chemical management

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- J. ESS&H corrective action tracking, trending, and analysis
- K. Medical Coordination Management and safety performance reporting management
- L. Human and Operations Performance Improvement
- M. Integrated Safety Management System (ISMS) processes and procedures, including facility and operations hazard controls.

**ISMS Implementation Manager** is responsible for:

- Identifying, analyzing, and mitigating safety hazards through the application and development of advanced techniques.
- Applying an understanding/knowledge of other safety related disciplines
- Using and following work control processes
- Providing technical support to line management regarding the implementation of safety requirements, company procedures, safety principles, theories, and concepts
- Providing input to facility/project safety and operational goals
- Reviewing/developing the facility/project level requirement and procedure documents to ensure safety requirements are identified
- Serving on IS/IH program committees as assigned
- Reviewing company instructions, procedures, and safety documents and provide comments
- Performing assigned management assessments and coordinating the performance of assigned program assessments by functional personnel
- Providing support to the ESS&H Functional Organization Project Manager and his staff, as requested
- Attending necessary training to maintain personal qualification for professional competence, company requirements, and facility access requirements as defined in the Individual Training Plan
- As assigned, coordinating the resolution of ISMS, HPI, and 851 issues and concerns as identified by employees or other sources in a timely manner and according to assigned due dates

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- Acting as an interface with appropriate line management in resolving issues or concerns
- Providing oversight and mentoring to the project management professionals and technicians
- Providing ISMS, HPI, and 851 leadership for the AMWTP key mission related emphasis programs through training for staff and management
- Ensuring that annual maintenance of PD-ISMS-01, Integrated Safety Management System Program Description Document, including applicable assessments and revisions, is completed.

**Radiological Controls Manager** is responsible for:

- Ensuring the Radiological Protection Program (RPP) as defined in the ESHPOP is implemented and properly incorporated into directives, procedures, practices, and controls
- Supporting the radiological safety work group by providing Radiological Supervisors, Radiological Engineers, Radiological Shift Team Leaders and Radiological Technician support in a professional manner
- Providing technical and administrative direction to Radiological Supervisors and Engineers consistent with AMWTP policies and requirements, and to ensure personnel safety
- Developing goals, objectives, policies, and procedures to ensure standardization and uniform application, accountability, and accomplishments of compliant operations
- Ensuring support and coordination of the AMWTP ALARA committee
- Ensuring radiological control personnel are staffed and trained to meet customer needs and comply with RPP requirements
- Providing senior management oversight for AMWTP operations.

**Radiological Engineers** (all) are responsible for:

- Serving as technical point of contact for radiation protection issues related to AMWTP operations or program elements, as assigned
- Assisting in implementing Radiological Safety program requirements through use of company procedures

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- Ensuring technical documents required for compliance with 10 CFR 835 are completed and retained
- Identifying conditions that may impede implementation of RPP standards and initiating actions to correct these conditions.

**Radiological Controls Supervisors** (all) are responsible for:

- Interfacing with customers to determine needs, work scopes and specific job requirements
- Supporting the radiological safety (RS) work group in providing Radiological Shift Team Leaders and Radiological Technician (RT) support in a professional manner
- Performing day-to-day management of RSTLs
- Providing day-to-day management of RSTLS including technical and administrative direction to consistent with AMWTP policies and requirements, and to ensure personnel safety
- Interfacing with the scheduling group to ensure proper resources are available for scheduled work
- Assisting in implementing procedures and practices to prevent inadvertent or uncontrolled release of radiological contaminants to the environment
- Ensuring RCT DOE Core Certifications are maintained, as well as facility qualifications
- Ensuring records required for compliance with 10 CFR 835 are completed and retained
- Ensuring assigned personnel are properly staffed and trained, including hiring and interviewing
- Making staffing recommendations to the Radiological Safety Manager as needed.

**Radiological Shift Team Leaders** (all) are responsible for:

- Ensuring all radiological requirements are implemented and followed
- Supervising the day-to-day radiological activities under the direction of the Shift Manager
- Promptly notifying the Shift Manager and Radiological Controls Supervisor when unplanned or unexpected events occur

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- Taking actions for TSR violations as required
- Supervising activities of assigned Radiological Technicians
- Providing work direction and leadership to their personnel and ensure safe execution of work
- Walking their spaces regularly and involving themselves with the activities of their personnel and facilities (NOTE: *A guideline target for being in the workspaces and observing work is 25-35% of their time. This includes time interacting with assigned people and monitoring activities in the field.*)
- Ensuring execution of work follows the requirements of company procedures
- Ensuring production work is accomplished in a safe and efficient manner
- Ensuring Radiological Technicians comply with all required policies and procedures
- Assisting Shift Manager in resolving problems related to personnel, training, and schedule compliance
- Reviewing work processes to identify areas for improvement and initiate needed improvements
- Conducting job walk-downs, pre-job briefs, and post-job briefs when required by procedures
- Reviewing facility radiological logbooks periodically
- Teaming with other groups to resolve processes, problems, and repairs
- Attending work-planning meetings to assist in coordinating work activities
- Working directly with the assigned Shift Team Leader to ensure the required radiological technical support is available and assigned to operational activities
- Assisting with document reviews and updates.

Radiological Technicians (all) are responsible for:

- Performing authorized day-to-day work and ensuring operations and maintenance activities are being conducted in compliance with radiological requirements
- Promptly notifying the Radiological Shift Team Leader when unplanned or unexpected events occur

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- Attending pre-brief and post-brief when required and ensure that, at all times, radiological hazards are understood and properly mitigated in operations and maintenance procedures
- Acknowledging ownership of the AMWTP Radiological Protection Program
- Ensuring turnovers are conducted per MP-COPS-9.10, Operations Turnover.

**Industrial Safety/Industrial Hygiene (ISIH) Manager** is responsible for:

- Organizing projects and task work scopes and selecting individuals most qualified for assignment to specific projects
- Providing ISIH oversight for all AMWTP operations
- Ensuring the ISIH/FP as defined in the ESHPOP is implemented and properly incorporated into directives, procedures, practices, and controls
- Ensuring AMWTP work scope has proper ISIH resources to support work
- Directing and managing ISIH programs and personnel including planning, scheduling and performance of all ISIH activities
- Evaluating, recommending and developing policies and procedures to assure awareness of and compliance with ISIH and fire protection requirements
- Reviewing and incorporating ISIH and fire protection standards promulgated by regulatory authorities and keeping fully informed on all existing and proposed changes in ISIH and fire protection regulations
- Coordinating audits of ISIH and fire protection programs to identify and control significant loss producing exposure
- Modifying existing procedures for optimum results and/or developing new procedures as necessary
- Providing ISIH leadership and direction to professional personnel and staff
- Ensuring ISIH staff core certifications and qualifications are maintained
- Developing and providing basic ISIH training to employees
- Promoting communication programs to enhance and encourage employee awareness of ISIH requirements

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- Providing monthly, quarterly, and annual reports as required by ISIH and the section or unit.
- Developing performance standards and objectives and measuring progress toward these goals
- Assisting in the development and design of business subcontracts and apply oversight to subcontractor work activities
- Performing safety and health audits, accident investigations, injury and accident statistical analysis, and compilation of required reports
- Supporting Safe Systems of Work Control by conducting job walk-downs, pre-job briefs, and post-job briefs when required by procedures or in support of work.

**ISIH Deputy Manager & ISIH Manager Operations** is responsible for:

- Assisting the ISIH Manager in organizing projects and task work scopes and selecting individuals most qualified for assignment to specific project
- Providing ISIH oversight for all AMWTP operations
- Supporting the ISIH work group in providing Shift Team Leaders and ISIH specialists and technicians in supporting work in a professional manner
- Ensuring AMWTP work scope has proper ISIH resources to support work
- Directing and managing ISIH programs and personnel including planning, scheduling and performance of all ISIH activities
- Evaluating, recommending, and developing policies and procedures to ensure awareness of and compliance with ISIH requirements
- Reviewing and incorporating ISIH standards promulgated by regulatory authorities and keeping fully informed on all existing and proposed changes in ISIH regulations
- Coordinating audits of ISIH programs to identify and control significant loss producing exposure
- Modifying existing procedures for optimum results and /or develop new procedures as necessary
- Providing ISIH leadership and direction to professional personnel and staff
- Ensuring required ISIH staff core certifications and qualifications are maintained

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- Developing and providing basic ISIH training to employees
- Promoting communication programs to enhance and encourage employee awareness of ISIH requirements
- Providing monthly, quarterly, and annual reports as required by ISIH and the section or unit
- Develop performance standards and objectives and measuring progress toward these goals
- Assisting in the development and design of business subcontracts and applying oversight to subcontractor work activities
- Performing safety and health audits, accident investigations, injury and accident statistical analysis, and compilation of required reports
- Supporting Safe Systems of Work Control by conducting job walk-downs, pre-job briefs, and post-job briefs when required by procedures or in support of work.

**ISIH Facility/Non-Facility Manager** is responsible for:

- Providing ISIH oversight for their respective AMWTP project
- Supporting the Occupational Safety, & Health (OSHA) work group in organizing projects and task work scopes and selecting individuals most qualified for assignment to specific project work in a professional manner
- Ensuring AMWTP project work scope has proper ISIH resources to support work
- Directing and managing ISIH programs, including planning, scheduling, and performing project ISIH activities
- Evaluating, recommending, and developing policies and procedures to assure awareness of and compliance with ISIH requirements
- Reviewing and incorporating ISIH standards promulgated by regulatory authorities and keeping fully informed on all existing and proposed changes in ISIH regulations
- Providing ISIH leadership and direction to professional personnel and staff
- Ensuring ISIH staff core certifications and qualifications are maintained
- Promoting communication programs to enhance and encourage employee awareness of ISIH requirements

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- Assisting in the development and design of business subcontracts and apply oversight to subcontractor work activities
- Performing safety and health audits, accident investigations, injury and accident statistical analysis, and compilation of required reports
- Supporting Safe Systems of Work Control by conducting job walk-downs, pre-job briefs, and post-job briefs when required by procedures or in support of work.

**ISIH Shift Lead** is responsible for:

- Providing ISIH oversight for the AMWTP shift
- Supporting the ESS&H work group in organizing projects and task work scopes and selecting individuals most qualified for assignment to specific project work in a professional manner
- Ensuring AMWTP work scope has proper ISIH resources to support work
- Reviewing and incorporating ISIH standards promulgated by regulatory authorities and keeping fully informed on all existing and proposed changes in ISIH regulations
- Providing ISIH leadership and direction to professional personnel and staff
- Ensuring ISIH staff core certifications and qualifications are maintained
- Promoting communication programs to enhance and encourage employee awareness of ISIH requirements
- Performing safety and health audits, accident investigations, injury and accident statistical analysis, and compilation of required reports
- Assisting in the development and design of business subcontracts and apply oversight to subcontractor work activities
- Supporting Safe Systems of Work Control by conducting job walk-downs, pre-job briefs, and post-job briefs when required by procedures or in support of work.

**ISIH Specialists and Technicians** (all) are responsible for:

Providing ISIH oversight for the AMWTP shift

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- Supporting the ESS&H work group by organizing projects and task work scopes in a professional manner
- Reviewing and incorporating ISIH standards promulgated by regulatory authorities and keeping fully informed on all existing and proposed changes in ISIH regulations
- Performing Industrial Hygiene monitoring as required by the respective work scope
- Performing safety and health audits, accident investigations, injury and accident statistical analysis, and compilation of required reports
- Ensuring adequate hazard mitigation for waste management activities
- Supporting Safe Systems of Work Control by conducting job walk-downs, pre-job briefs, and post-job briefs when required by procedures or in support of work
- Providing ISIH leadership and direction to professional personnel and staff
- Ensuring ISIH staff core certifications and qualifications are maintained
- Promoting communication programs to enhance and encourage employee awareness of ISIH requirements
- Provides technical assistance to operations to ensure compliance with applicable federal, state, local, company, and client regulations
- Providing support to project personnel regarding the applicability and regulatory interpretation of health and safety requirements.

**Medical Management Coordinator** is responsible for:

- Providing medical and emergency response for work related injuries and illnesses
- Scheduling and notification for all certification and surveillance exams
- Case management of AMWTP workers' compensation injuries/illnesses
- Processing and coordinating data tracked through the CAIRS data base
- Coordinating and performing all AMWTP respirator fit testing
- Administering the Occupational Health Manager software

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- Providing oversight and assistance for AMWTP Industrial Safety and Industrial Hygiene department activities
- Developing and producing all BBWI and DOE required injury and illness status reports for AMWTP.

**Site Occupational Medical Director (SOMD)** is responsible for:

- Coordinating with other safety and health professionals (industrial hygienists, health physicists, safety specialists/managers) to identify work-related or work site hazards and their possible health risks to employees.
- Possessing a current knowledge of actual or potential work-related hazards (physical, chemical, biological, ergonomic).
- Performing or monitoring targeted examinations based on an up-to-date knowledge of work site risks and health effects resulting from worksite exposures.
- Conducting periodic AMWTP site tours and having regularly scheduled meetings with the PMC, IS/IH staff, & management.
- Communicating the results of health evaluations to the PMC, AMWTP management, and those responsible for mitigating worksite hazards.
- Overseeing the medical examination process but may at discretion delegate other medical providers to perform medical examinations. These medical examinations must be conducted by a licensed physician or Licensed Health Care Professional under the direction of the SOMD.
- Dictating the content of health examinations. The following classes of examinations are required for the purpose of providing initial and continuing assessment of employee health as determined by the SOMD responsible for delivery of medical services:
  - Pre-placement exams in accordance with the Americans with Disabilities Act (42 United States Code 12101)
  - Periodic examinations
  - Fitness for duty
  - Medical surveillance and health monitoring
  - Return to work health evaluations
  - Termination examinations.
- As needed, evaluate employee that has a written return to work documentation, incidents of lost time and the associated costs.

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- Reviewing and monitoring the medical aspects of contractor sponsored or supported employee assistance, alcohol, and other substance abuse rehabilitation programs.
- Approving and coordinating all contractor sponsored or supported wellness programs.
- Ensuring that immunization programs for blood-borne pathogens and bio-hazardous waste programs conform to OSHA regulations and Centers for Disease Control guidelines for those employees at risk to these forms of exposure.
- Overseeing employee medical records procedures maintained for each employee for whom medical services are provided. The confidentiality of all employee medical records shall be observed. The SOMD shall ensure that all applicable aspects of HIPAA are maintained. Employee medical records shall be adequately protected and stored permanently.
- Overseeing the medical portion of the site emergency and disaster plan. The medical portion shall be integrated with the overall site plan and with the surrounding community and INL site emergency and disaster plan.
- The SOMD shall be a graduate of a school of medicine or osteopathy who meets the licensing requirements of the State of Idaho.

**Fire Protection Engineer** is responsible for:

- Performing, coordinating, and authorizing building and fire protection plan reviews
- Performing Fire Hazards Analyses and Fire Safety Assessments for compliance with applicable fire related codes, standards and DOE criteria
- Serving as AHJ focal point with cognizant company engineering and design personnel for the coordination and integration of applicable Fire Protection and Life Safety criteria during the project design phases
- Applying fire protection engineering concepts and approaches to unusually complex problems and develop innovative solutions to meet management and fire protection criteria and objectives
- Assisting in fire or other incident investigations where protection systems, special hazards, or industrial processes are involved
- Preparing reports.

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**AMWTP Fire Marshall** is responsible for:

- Performing all duties of a Fire Protection Engineer
- Performing Authority Having Jurisdiction activities delegated by DOE-ID
- Administering and enforcing the AMWTP Fire Protection Program.

**Project Security Manager** is responsible for:

- Providing the technical expertise, management, and leadership to support security needs at the AMWTP
- Managing all aspects of Safeguards and Security for the company
- Develop and managing procedures to ensure compliance with DOE Security regulations
- Reviewing and approving security plans for company areas/programs
- Determining level of security support services needed from BEA
- Evaluating security services for compliance and level of performance
- Serving as interface between BEA/CWI/DOE-ID regarding security issues
- Serving as Facility Security Officer to the AMWTP Project
- Providing oversight and formal evaluation of the mandatory security support service functions, to include planning, scheduling, resource allocation and setting of organization goals and strategies
- Serving as point of contact in the company for Protective Services support to AMWTP projects
- Ensuring the implementation of the AMWTP Security Plan and MC&A Plan
- Filling the following required positions for BBWI at AMWTP; a) AMWTP Facility Security Officer, b) AMWTP Material Control and Accountability Officer, and c) AMWTP Classification Officer or Representative
- Establishing and maintaining an information security program to ensure the protection of classified material/information and Unclassified Sensitive Information
- Establishing and maintaining security related service agreements between BBWI and INL

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- Coordinating with the IT manager in establishing and maintaining a Cyber Security Management Plan
- Developing and implementing additional security procedures
- Developing and implementing and Operational Security program
- Coordinating with DOE-ID Security on security related matters.

**Deputy Project Security Manager** is responsible for:

- Providing the technical expertise, and leadership to support the security needs at the AMWTP
- Establishing and maintaining AMWTP security programs consistent with DOE-ID orders and federal regulations
- All aspects of Safeguards and Security for the company
- Developing and managing procedures to ensure compliance with DOE Security regulations
- Creating security plans for company areas/programs
- Providing input to the Security Manager in determining level of security support services needed from BEA
- Assisting in evaluating security services for compliance and level of performance
- Serving as an interface between BEA/CWI/DOE-ID regarding security issues
- Assisting in providing oversight and formal evaluation of the mandatory security support service functions to include planning, scheduling, resource allocation and setting of organization goals and strategies
- Serving as point of contact in the company for Protective Services support to AMWTP projects.

**AMWTP Emergency Response Planner** is responsible for:

- Planning and conducting Emergency Response Organization (ERO) drills
- Evaluating and critiquing emergency drills

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- Maintaining the ERO training program and conducting ERO staff training
- Maintaining the AMWTP Emergency Plan/RCRA Contingency Plan, applicable addenda, and other related documents
- Coordinating emergency response activities with the RWMC (operated by CWI)
- Serving as the emergency preparedness subject matter expert to the AMWTP on emergency preparedness issues
- Maintaining the Personnel Accountability Program
- Maintaining the AMWTP position-specific ERO checklists and documentation
- Maintaining the AMWTP command post (WMF-685) and alternate command post in a ready state and fully supplied
- Coordinating AMWTP resources to support participation in the annual INL, site-wide emergency exercise
- Implementing DOE directed efforts such as the training and certification of AMWTP emergency response personnel in the National Incident Management System, operated by the U.S. Department of Homeland Security
- Negotiating service agreements between the AMWTP, site contractors, and DOE-ID to ensure emergency services are provided to support AMWTP operations
- Implementing emergency management related DOE orders, guides, and manuals as negotiated between DOE-ID and the AMWTP
- Ensuring that emergency preparedness documents (facility addenda, hazards assessments, and implementing procedures) are maintained as required by company policies
- Providing emergency preparedness, response, planning, personnel accountability, event coordination/mitigation, training, and emergency communication for the entire project
- Actively interfacing with counterparts at the INL, the State of Idaho, and local communities
- Ensuring that applicable requirements documents are appropriately implemented and that those implementation documents are properly maintained.

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**Environmental Compliance and Regulatory Affairs Manager** is responsible for:

- Maintaining all environmental permits
- Ensuring that all environmental requirements are properly defined and flowed down to operation documents for compliance
- Providing subject matter expertise and consulting on operational issues
- Providing the necessary interfaces with regulatory agencies for all environmental aspects at AMWTP
- Preparing and implementing an EMS (based on ISO 14001) within the ISMS program at AMWTP
- Defining RCRA Permit operating record documents and drawings
- Providing environmental reviews of work-control documents such as comprehensive environmental screens of engineering change forms, document change requests, preventive maintenance, Waste Operations, etc., for National Environmental Protection Act, RCRA, air, water, and environmental checklist requirements; tracking required action assignments
- Providing regulatory and permit interpretations and resolving issues for all environmental programs
- Providing input to and oversight of waste stream characterization, identification of requirements, and management path disposition
- Responding to information requests from Operations and other support organizations for environmental and regulatory support (i.e., waste management process descriptions, inspection/operating records, inventory details, waste analysis results, etc.)
- Preparing AMWTP input data and reports required by permits, environmental regulations and DOE orders
- Performing periodic visible emission monitoring of AMWTP
- Performing quarterly fugitive dust compliance surveys per Title V permit requirements
- Supporting the AMWTP Chemical Management System chemical custodians (i.e., review of chemical purchase requisitions)

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- Conducting facility walkthroughs and compliance inspections to verify compliance with environmental requirements, recording observations, and ensuring corrective actions are implemented
- Preparing environmental checklists and conducting National Environmental Policy Act reviews of proposed activities
- Preparing and conducting environmental sampling activities in support of Operations and Waste Management organizations
- Interfacing with project customers and DOE to track facility environmental issue action assignments and commitments
- Determining and implementing the policy for interfacing work activities of the Environmental group with other support staff (such as Operations, IS/IH, and Radiological Safety).

**Environmental Engineers/Specialists** (all) are responsible for:

- Communicating company environmental policy and regulatory requirements to support organizations
- Assisting support organizations in resolving environmental compliance issues through the implementation or interpretation of environmental and waste management policies, guidance or procedures
- Performing RCRA permitting activities
- Preparing the TSCA annual reports and providing guidance for the proper cleanup of PCB spills
- Preparing air permit applications, renewals, modifications, and notifications
- Providing Federal/State air emission reporting requirements, i.e., National Emission Standards for Hazardous Air Pollutants (NESHAPs)
- Ensuring project personnel are aware of the INL approved pesticide list and that no other pesticides are used at the facility
- Ensuring that the Accidental Or Unintentional Release of an ODS (Refrigerants) form is completed for all releases of ODS
- Preparing the SARA 311, 312, and 313 reports

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- Maintaining the AMWTP Chemical Management System
- Supporting NEPA by working with INL personnel to complete Environmental Checklists
- Conducting random inspections of facilities to assist in compliance efforts
- Providing guidance to project contacts for proper disposition of materials
- Providing WGS assistance to operations for solid waste determinations and identifying opportunities for recycling and waste minimization
- Providing instruction to project personnel to contain, clean up, and disposition spilled material
- Reviewing applicable project work planning documents for appropriate environmental guidance and restrictions
- Providing environmental expertise to ad hoc committees.

### **Project Controls**

**Project Controls Manager** is responsible for:

- Ensuring the safe and compliant execution of work throughout the project
- Ensuring implementation of controls necessary to manage the project scope, schedule, and cost
- Establishing a method for planning, monitoring, and reporting project progress and an earned-value reporting system
- Leading in the development of:
  - Contract Baseline Development
  - Baseline Cost & Schedule Control
  - Change Control Reporting
  - Variance Analysis/Reporting
  - Trend Program
  - Monthly Report Preparation
  - Earned Value Measurement/Reporting (BCWS/BCWP/ACWP)
  - Procedure Development and Maintenance.

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**Project Controls Technical Lead** is responsible for:

- Supporting the Project Controls Manager in the planning, organizing, directing, coordinating, monitoring, and evaluating work of assigned Planning & Controls Engineers
- Leading and facilitating in the development of:
  - Contract baseline development
  - Baseline cost and schedule control
  - Change control reporting
  - Variance analysis and reporting
  - Trend program
  - Monthly report preparation
  - Labor tracking & reporting
  - Estimate preparation
  - Earned value measurement and reporting (BCWS/BCWP/ACWP)
  - Material/subcontract/services tracking and reporting
  - Procedure development and maintenance
  - Special requests.

### **Planning and Integration**

**Planning & Integration Manager** is responsible for:

- Ensuring the safe and compliant execution of work throughout the project
- Ensuring safety and health programs are in place and safety and health is integrated into plant activities
- Identifying, designing, and implementing plant modifications and plant capital projects to enhance operational efficiency, and safety
- Providing general engineering design support to operations
- Managing, planning, integration, engineering functions, production and management of process models and performance metrics
- Providing project change control, including project and documentation management
- Providing scheduling support to Production Operations, Engineering and Maintenance.

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**Engineering & Capital Projects Manager** is responsible for:

- Implementing and maintaining conduct of engineering at the AMWTP
- Ensuring that robust processes for configuration management and design control are in place at the AMWTP
- Identifying, designing, and implementing plant capital projects to enhance operational efficiency, safety, and compliance with requirements
- Coordinating with the project management function the resources to support large-scale capital improvement projects
- Providing design resources in support of day-to-day operations
- Overseeing the performance of engineering design and drafting services and ensuring that delivered products meet requirements
- Ensuring that contractual requirements and best management practices related to engineering processes are implemented through approved engineering procedures and instructions
- Assisting engineers in the implementation of engineering work processes
- Supporting establishment of engineering training requirements
- Facilitating training activities and track training status of staff
- Performing assessments of the engineering program
- Managing (through a formal issues management system) engineering program issues identified in the course of performing engineering work
- Acting as the AMWTP design authority
- Providing independent oversight and mentoring for the Nuclear Safety and TRU Programs technical services functions.

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**Design Engineering Manager** is responsible for:

- Providing engineering design, analysis, and drafting resources in support of continued operations and plant upgrades
- Providing a design and analysis capability in support of day-to-day operations
- Ensuring that contractual requirements and best management practices related to engineering processes are implemented through approved engineering procedures and instructions
- Assisting engineers in the implementation of engineering work processes
- Supporting establishment of engineering training requirements
- Performing assessments of the engineering program
- Managing (through a formal issues management system) engineering program issues identified in the course of performing engineering work
- Ensuring technical adequacy of, appropriate review of, and approves all Design Engineering deliverables
- Providing supervision of design agency or liaison function to design agency where not performed in-house
- Ensuring adequate Design Engineering support as required to accomplish AMWTP project tasks and objectives
- Ensuring Design Engineering staff is appropriately competent, trained, and qualified for assigned work and facilitate training activities and track training status for engineers
- Supporting compliance with Integrated Safety Management, and conduct of operations.

**Control Account Manager**

**Control Account Managers** (all) are responsible for:

- Planning and managing assigned cost accounts and work packages
- Developing baseline budgets
- Assisting in analyzing costs and performance reports
- Generating trends and/or baseline change proposals as required

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- Determining and approving time-scale and costs for work to be performed
- Ensuring control accounts and work packages are managed on time and within budget
- Ensuring supporting organizations are engaged in the planning and execution of assigned work
- Identifying, assessing, and managing issues and risks.