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INSTITUTIONAL PROGRAMS

This chapter discusses additional institutional programs at WIPP which fulfill the objectives of DOE Order 5480.23, Nuclear Safety Analysis Reports.[1] A description of the requirements and their implementation is provided for the following programs:

- Management, Organization, and Institutional Safety
- Procedures and Training
- Initial Testing, In-Service Equipment Monitoring, and Maintenance
- Operational Safety
- Emergency Preparedness Program

8.1 Management, Organization, and Institutional Safety Provisions

8.1.1 Introduction

The WIPP facility is managed by Westinghouse Electric Company (WELCO), Government and Environmental Services Company (GESCO), Waste Isolation Division (WID). GESCO includes other Government facilities operated by Westinghouse, and the WID draws on these resources as a result of this arrangement.

8.1.2 Requirements

The requirements and guidelines for developing the WID Management, Organization, and Institutional Safety program are provided in DOE Order 4700.1, Project Management Systems[2] and DOE/WIPP 103,[3] DOE Management Directives for the WIPP.

8.1.3 Organizational Structure, Responsibilities, and Interfaces

Westinghouse Electric Company has managed and operated the WIPP facility for the DOE since October 1985. Westinghouse, as the Management and Operating Contractor (MOC), provides the management staff, sets the safety culture, issues policies, and implements programs.

Several committees have been formed to integrate information regarding environment, safety, health, and radiation protection activities at the various facilities served by the Business Unit (BU). These committees facilitate the sharing of solutions to common problems and issues. The BU management team is supportive of WID activities by participating in Corporate reviews and audits of WIPP activities, and by providing management attention, as needed.

Additionally, the WID has access to Corporate expertise in several disciplines including waste management, risk assessment, safety analysis, environmental services, technical and analytical services, regulatory compliance, transportation, legal, quality assurance (QA), and others, as required.

The Westinghouse Corporate Audit Organization Charter allows for review of GESCO facility operations, which include the WIPP, to evaluate compliance with applicable policies, plans, procedures, laws and regulations. Westinghouse policy is to conduct all operations so that the health and safety of the employees, the public, and the environment remain protected. This commitment extends to all levels of management, and is reflected in the goals and objectives established for operating facilities.

The corporation has no specific authority regarding the engineering and design, construction, QA, testing, operation, and other activities beyond those carried out by the WID, as specified in the contract with the DOE. Corporate resources are available and will be committed, as needed, to ensure that WID activities are conducted safely, correctly, and efficiently. Corporate management plays a vital role in providing appropriate direction for WID activities by selecting the WID General Manager (GM).

8.1.3.1 Organizational Structure

Responsibility for operating the WIPP facility has been assigned to the MOC organization. Figure 8.1-1 shows the chain of command by which the Assistant Secretary for Environmental Restoration and Waste Management exercises responsibility for the operational safety of the WIPP.

While responsible for all aspects of the WIPP facility, DOE has contracted these scopes of work to various organizations. The MOC is responsible for managing the current and future construction contracts, and to operate the WIPP facility, including all day-to-day operations.

The GM is responsible for the design, operation, maintenance, and modification of the WIPP facility, including the health and safety of employees, and the protection of the environment. The GM has issued policies exercising this responsibility to manage these activities directly, or by delegation of authority. Management functions are performed according to management policies and requirements defined in the operating contract.

8.1.3.2 Organizational Responsibilities

The GM has delegated specific responsibilities to managers for the following WIPP functions:

1. Radiation safety, industrial safety, environmental protection, and regulatory compliance;

2. Operation, control, and maintenance of all surface structures, including the Waste Handling Building and associated equipment; handling and storing radioactive waste on site; transporting hazardous material off-site; transporting salt aboveground; monitoring and operating site utilities including HVAC, power distribution, water and sewer; operating the Central Monitoring System; underground operations including mining, transporting salt underground, hoisting, operating key facility experimental programs; and equipment maintenance;

3. Design of equipment, systems, and facilities for special operations; review of designs proposed by other major Project Participants; design of new or necessary facilities; resolution of technical and operational problems; and maintenance of design configuration;

4. Identification, development and definition of applicable requirements; assistance to management in interpreting and implementing QA program elements; provide performance-based and improvement-oriented independent assessment activities specific to quality improvement; review Federal Registers; review DOE Orders; perform field audits; evaluate audits of other departments; and, act as the Defense Nuclear Facilities Safety Board (DNFSB) point of contact;

5. Planning and scheduling; integration of technical programs, program development and program reporting, strategic planning and long term budget development; programmatic performance; recommend work-scope priorities; and, conduct contingency analyses;

6. Financial resources, accounting, computer services, material and property control, document and procedure review, and procurement services;

7. Coordination of all personnel-related functions supporting facility operations, planning and implementing the general employee technical training programs, and certifying/qualifying the operating staff;

8. Public information programs, governmental affairs, technical outreach and communications; public displays, handouts and brochures, interaction with the electronic and print media, visitor's program at the WIPP, Speaker's Bureau activities, identification and resolution of issues between the WIPP Project and outside institutions, maintain contacts with individual representatives from outside institutions, public relations efforts, and the States and Tribal Education Program (STEP), which is aimed at preparing emergency response personnel bordering the WIPP transportation routes.

8.1.3.3 Staffing and Qualifications

The GM has a Bachelors or advanced degree in engineering or business, or equivalent, and at least 15 years of diverse nuclear plant operations experience, including at least 5 years of department-level management or equivalent experience.

8.1.4 Safety Management Policies and Programs

8.1.4.1 Safety Review and Performance Assessment

Facility safety elements are reviewed annually. The WIPP MOC ensures that applicable environment, safety, and health requirements are met according to DOE Order 5480.23, *Nuclear Safety Analysis Reports*.[1] The review focuses on the functional areas within the safety program including: industrial safety, fire protection, and hazardous material elements.

WID procedure WP02-AR3001, *Unreviewed Safety Questions Determination*,[6] implements the requirements of DOE Order 5480.21, *Unreviewed Safety Questions*.[7] The procedure includes the screening criteria to determine if a proposed activity requires further evaluation and exemptions for activities that require no screening; the safety evaluation criteria for detailed evaluation of proposed activities and potential issues, including examples to aid the evaluators; identification of the training and appointment requirements for screeners, evaluators, and independent reviewers; documentation requirements and forms; and, identification of the authorization basis documents. Proposed engineering changes, operating procedures and certain controlled document changes, as well as discovered issues are screened and/or evaluated by qualified personnel. A limited number of personnel are trained and designated by department managers to perform the safety evaluations; all independent reviewers are designated by the manager of ES&H. Positive USQ determinations identified by safety evaluators and independent reviews are reviewed by the Nuclear Review Board (NRB) who are also trained safety evaluators.

8.1.4.2 Configuration and Document Control

The facility is designed to the requirements of DOE Order 6430.1A, General Design Criteria,[8] and design modifications are controlled by the Engineering Change Order (ECO) process, as implemented by WP 09-9 WID Operational Configuration Management Plan.[11] The ECO is used to implement and control changes to approved engineering design documents.

WIPP Technical Procedures and Emergency and Alarm Response Procedures are written using guidance provided in WP 15-PS.2, *Technical Procedure Writer's Guide*.[4] WP 15-PS.2 references the basic steps for procedure writing found in DOE-STD-1029-92, *DOE Writer's Guide for Technical Procedures*.[5] Modifications to operating procedures resulting from an ECO are controlled through the Procedure Change Notice (PCN) process. Procedure changes are implemented through procedure WP 15-PS3002, WID Controlled Document Processing,[12] which provides the process for review, approval, and cancellation of WID documents controlled by Document Services.

Temporary or permanent changes proposed to the facility are measured against criteria specified in the Unreviewed Safety Question Determination procedure, WP 02-AR3001.[4] USQs are reviewed against the SAR and Technical Safety Requirements (TSR). A safety evaluation documents any change, as mandated by DOE Order 5480.21.[7]

8.1.4.3 Occurrence Reporting

The Occurrence Reporting Process at the WID is directed by DOE Order 232.1A, Occurrence Reporting and Processing of Operations Information.[13] The WID occurrence reporting implementing procedure is WP 12-ES3918, Reporting Occurrences In Accordance With DOE Order 232.1A.[14] This occurrence reporting procedure provides for reporting events to the Facility Manager (FM) or his designee for categorization.

Examples of events that should be reported include, but are not limited to the following: events that could endanger or adversely affect personnel safety or operations, or are contrary to DOE requirements. In addition, the procedure requires the event to be investigated to determine the direct cause, root cause and contributing causes, and to develop corrective actions to prevent recurrence.

The WIPP Lessons Learned Program was established as required by DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities,[15] and is implemented by WID Management Charter MC 9.20, Rev. 1, *Lessons Learned Working Group*.[16] WID Management Charter MC 9.20 empowers the Lessons Learned Working Group to administer the Lessons Learned Program, which was implemented to ensure a continuing improvement in plant safety and reliability. Lessons Learned bulletins are developed from information obtained from DOE Safety Notices, Nuclear Regulatory Commission Bulletins, external occurrence reports, internal occurrence reports, internal investigative reports, and other pertinent industry documents. Lessons Learned bulletins are distributed to the WIPP managers for inclusion into their required reading, as applicable.

8.1.4.4 Safety Culture

A safe working environment is the priority at the WIPP. Individuals responsible for performing work are continually evaluating the safety of themselves, the environment, and the facility. This philosophy is directed from the top down within the organization.

The Management approach to Occupational Health and Safety at the WIPP emphasizes the integration of safety into all aspects of the facility mission. WIPP management has communicated its expectations of site personnel and subcontractors regarding safety through policies, procedures, programs, and recognition as discussed in the Westinghouse Electric Company, WID, Voluntary Protection Program Application, 1994.[17] Senior management infuses the principles of safety to mid-management, mid-management to line management, and this continues until every employee incorporates safety principles into their job.

Top management is "visibly" involved in safety and health programs by establishing goals, approving management policies, providing accountability mechanisms, implementing site tracking systems, participating in employee communications, reviewing injury/illness trends, reviewing Industrial Safety and Hygiene (IS&H) summaries, and providing resources to perform jobs safely. Management support is evidenced by the Westinghouse Electric Company, WID, Voluntary Protection Program Application, 1994,[17] and application for recertification in 1997.

The DOE Voluntary Protection Program (VPP) Star Status recognition was awarded to the WID because of their comprehensive health and safety program. The VPP program encourages recognition of successful leading- industry injury and illness prevention programs that result in reducing workplace hazards. The WIPP Safety program elements including training, employee involvement, management commitment, and hazard prevention and controls were reviewed during the VPP application process. The WIPP Safety program annual re-evaluation maintains the appropriate focus on safety to retain VPP Star status.

8.1.4.5 Operational Systems Safety

This aspect of Operational Systems Safety deals with operational controls whose purpose is to detect and control hazards in operational activities. The program is carried out through independent safety review, inspection, and analysis by the Environment, Safety, and Health organization. Specific features of Operational Systems Safety include:

- Design review - Formal, documented design reviews of facilities and equipment are attended by IS&H, as required, in addition to construction packages review, and design specifications. Comments generated are formally resolved, with sign off/concurrence required in the final issued package.

- Procedures review - Operations and maintenance procedures are formally reviewed, and approved, by IS&H personnel, as required, to ensure that hazards inherent in the work are properly controlled. In the process, proper personal protective equipment and other precautions are reviewed.

- Operational readiness analysis - As part of the formal startup process for new facilities and components, IS&H participates in formal readiness analysis, to ensure that safety-related personnel (qualifications and training), equipment, and procedures are in place prior to initial operations.

- Procurement and subcontract reviews - IS&H reviews of purchase orders, as required, are performed to ensure that purchases of hazardous/toxic substances are known to IS&H, and to ensure that no prohibited materials are purchased. These reviews also ensure that any necessary use precautions are issued to the user when the materials are brought on the site. Subcontract reviews are performed to ensure that DOE and other safety regulations are specified as contract requirements.

- Inspections - Actual compliance with safety requirements is periodically evaluated through scheduled and unannounced inspections, appraisals, and walkthroughs of the workplace by IS&H personnel.

- Fitness-for-Duty - This policy is applicable to all WID personnel, and is relative to the ability of any employee to perform his/her job in a safe and healthful manner. The Fitness-for-Duty Program includes the identification and disposition of substance or alcohol use or abuse problems, and physical or psychological impairment problems of any kind.[18]

References for Section 8.1

1 DOE Order 5480.23, Nuclear Safety Analysis Reports, April 10, 1992.

2 DOE Order 4700.1, Project Management Systems, March 6, 1987 (For reference only, superceded by DOE O 430.1A).

3 DOE/WIPP 103, DOE Management Directives for WIPP.

4 WP 15-PS.2, *Technical Procedure Writer's Guide*, Rev. 0, March 1997.

5 DOE-STD-1029-92, *DOE Writer's Guide for Technical Procedures*

6 WP02-AR3001, Unreviewed Safety Questions Determination, Rev. 0, March 1998.

7 DOE Order 5480.21, Unreviewed Safety Questions, December 24, 1991.

8 DOE Order 6430, General Design Criteria Manual for DOE Facilities (draft), June 10, 1981 (For reference only, superceded by DOE O 420.1 and DOE O 430.1A).

9 DOE Order O 420.1, Facility Safety, October 1995.

10 DOE Order O 430.1, Life-Cycle Asset Management, August 1995.

11 WP 09-9, Configuration Management Plan, Rev. 3, February 25, 19996.

12 WP 15-PS3002, WID Controlled Document Processing, February 1999.

13 DOE Order 232.1A, Occurrence Reporting and Processing of Operations Information, August 1997 .

14 WP 12-ES3918 , Reporting Occurrences in Accordance with DOE Order 232.1A, Rev.1 , April 1999.

15 DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities, July 9, 1990.

16 WID Management Charter MC 9.20, Rev. 1, *January 1997, Lessons Learned Working Group*.

17 Westinghouse Electric Corporation, Waste Isolation Division Voluntary Protection Program Application, 1994.

18 WP 15-078, Fitness for Duty, Rev. 0, May 29, 1992.

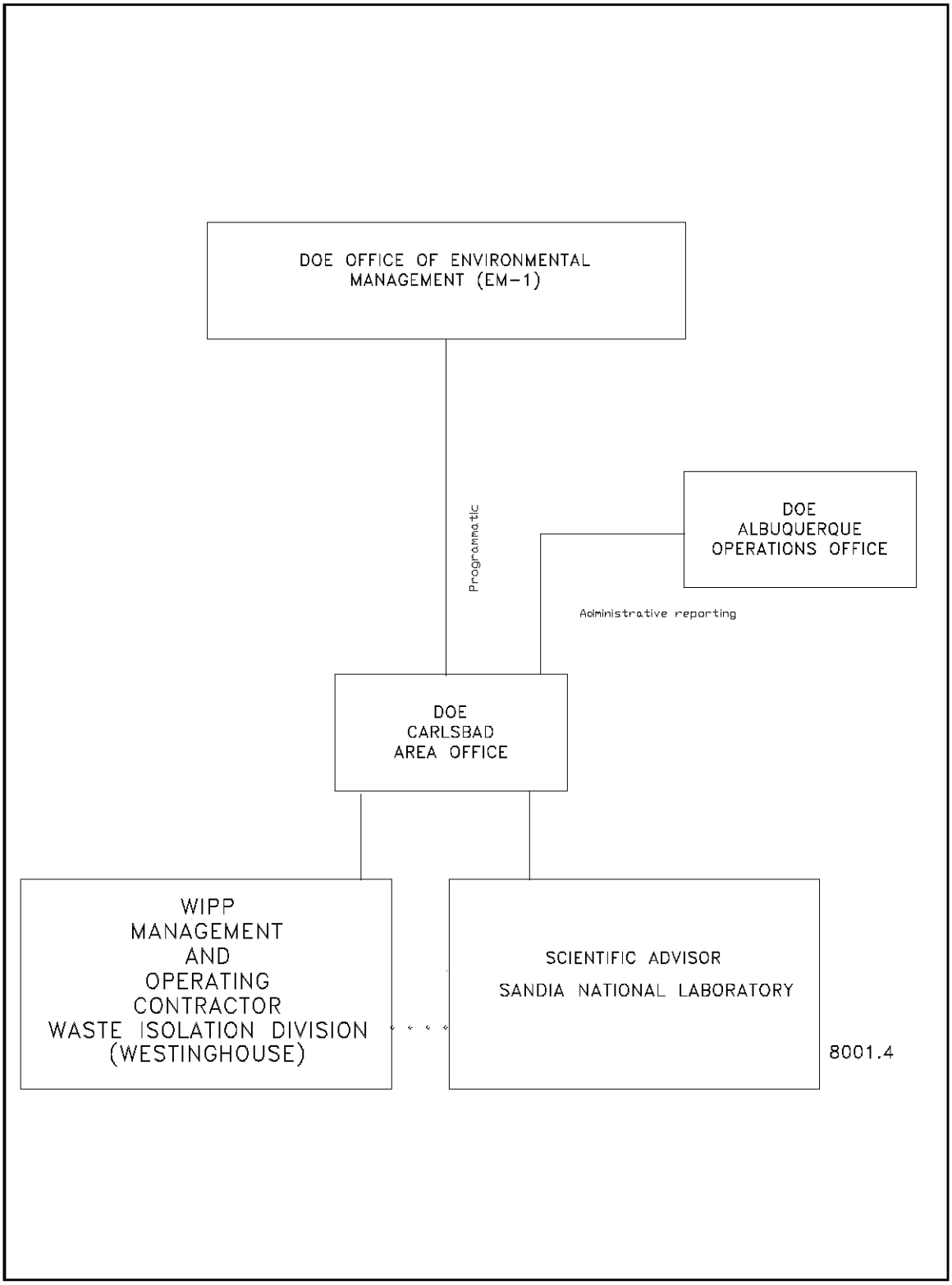

Figure 8.1-1, WIPP Facility Operations Responsibility

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8.2 Procedures and Training

8.2.1 Introduction

The WIPP training program is organized and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that fulfills job-related needs and regulatory requirements. The MOC is responsible for establishing and administering the overall training program for WIPP personnel. Operations procedures are provided to ensure the facility is operated within its safety basis.

8.2.2 Requirements

Minimum requirements for the selection, qualification, and training of personnel at the WIPP are specified in DOE Order 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.[4] The minimum requirements for procedures are specified in DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities.[5]

8.2.3 Procedures Program

Formal written operating procedures are prepared for all developments and modifications that would affect the safety and/or the design purpose of the facility as defined in the SAR. Procedures govern configuration control of the facility and those systems designated Defense-in-Depth in Chapter 5. In addition, maintenance and calibration procedures are used to insure compliance with the safety basis of the site, as defined in this Safety Analysis Report. Work on Defense-in-Depth Structures, Systems, and Components (SSCs) is controlled procedurally.

Procedures are established to ensure the satisfactory preparation and thorough review of the operating procedures and any modifications to the procedures that may be necessary.

A master file of operating procedures is kept current, and controlled copies are available. The QA requirements for procedures are discussed in Chapter 9.

8.2.3.1 Development of Procedures

Procedure selection or need is required when a defined task or activity is to be performed, which meets one of the following criteria: (1) accomplishes work or activities defined in the WID QAPD, or creates quality records, (2) provides specific direction for the operating equipment and/or systems included in the configuration management process, (3) provides specific direction for physical activities that require repeatability and documented results, as described in WP 15-PS.2.[7] . The cognizant organization manager assigns a technically competent person, as defined in WP 13.1, WIPP *Quality Assurance Program Description,*[2] to develop the technical content of the document. Additionally, the cognizant organization manager determines which organizations will review the procedure, verifying its technical content and requirements, and the validation process, to determine if the procedure can be performed as written. An Unreviewed Safety Question (USQ) screening is performed by a qualified individual per WP 02-AR3001, *Unreviewed Safety Question Determination*.[3]

Revisions to procedures are processed according to WP 15-PS3002, *WID Controlled Document Processing*.[1] According to WP 15-PS3002, a proposed revision is prepared and processed by the cognizant organization. A review of the changes by all affected groups is the minimum requirement for revisions. Processing through USQ screening is required for all but minor changes.

Following successful completion of the technical review and validation process, the document package is sent to the Document Review Committee for final review, then the procedure is approved for use by a cognizant organization manager.

8.2.3.2 Maintenance of Procedures

Procedures undergo a periodic review during which a technically competent person must review the procedure for any new or existing requirements, cancellations, deletions, or additions. The change process allows for procedure changes that require immediate correction. Changes to the procedures mandate a technical review that must be signed off by the cognizant organization manager and a technically competent person before issuance as an approved change.

8.2.4 Training Program

The training program for employees, visitors, and subcontractors at the WIPP facility is a formally organized and continuing program. Training programs address the training of WIPP personnel and any site subcontractors in job-related training subjects spanning all levels of the organization, from fundamental technical skills and speciality training, to supervisory and management skills training. A formal Training Program for the WIPP facility operation staff and technical support personnel has been established. Training program policies and procedures define job function, responsibility, authority, and accountability of WID personnel involved in managing, implementing, and conducting training.

The primary objective of the WIPP facility training program is to prepare personnel to operate the WIPP in a safe and environmentally sound manner. To achieve this objective, the training program provides all employees with training relevant to their positions. Full-time employees at the WIPP, regardless of employer, and including those not directly involved in waste handling activities, receive an introduction to the Resource Conservation and Recovery Act (RCRA) and emergency preparedness within 30 days of employment as part of the General Employee Training (GET). In this way, everyone at the WIPP is given a basic understanding of regulatory requirements and emergency procedures. Employees in hazardous or mixed waste management positions receive additional classroom and on-the-job training designed specifically to teach them how to perform their duties safely, and to ensure the facility's compliance with the regulations. Hazardous/mixed waste management personnel receive the required training before being allowed to work unsupervised.

8.2.4.1 Development of Training

The training program is organized and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that fulfills job-related needs and considers regulatory requirements. Implementation of training at the WIPP is a shared effort between the functional groups and the training section. WIPP training and qualifications programs are included in the following areas:

- Operations (Facility Operations, Waste Operations, Underground Operations)
- Maintenance Mining Operations
- Environmental and Radiological Control
- Industrial Safety and Health
- Engineering
- Quality and Regulatory Assurance
- Technical Training

Training to support qualification programs is based on a systematic approach to training (SAT). A graded approach has been used to tailor the training program to the needs of the WIPP site. The WIPP application of the SAT methodology is described in detail in the WIPP Training Program, WP 14-TR.01.[6] A product of this process is a training program designed to meet the skill and knowledge needs for the evaluated task or job. Through this process, the final program elements will be defined, including training frequency. Each training program is carefully developed and periodically re-evaluated to ensure relevance to the course objectives, compliance with the regulations, and support of the goal of safe and environmentally sound operations at the WIPP. This process is useful because it compels managers and training staff to look critically at each position, and to determine the necessary training program for each employee to fully develop their necessary expertise. If regulatory guidelines require, or task performance should dictate continuing or recurrent training, it is established at this point.

The Technical Training Section is responsible for administering training programs, for complying with training standards affecting both regular and contract personnel, and for maintaining current and accurate records reflecting the training of each employee. Records activities follow an approved "Records Inventory and Disposition Schedule," reviewed and updated at least annually, to comply with federal codes, policies, or directives concerning training records administration.

8.2.4.2 Maintenance of Training

Training programs are periodically reviewed, focusing on changes in job scope, task, performance, procedure, and regulation. Training programs are approved and authorized by appropriate line management and WIPP Training management before being implemented or revised.

Because changes are anticipated, to maintain qualifications, a qualified employee will requalify on applicable qualification cards every two years in order to maintain their qualification. Radiation Control Technician (RCT) requires that the employee requalify only on infrequent or abnormal tasks. This requalification focuses on continuing training in tasks that are critical to safety, or are difficult, or infrequently performed. This commitment to refresher training ensures a proficient and safe workforce.

8.2.4.3 Modification of Training Materials

When it is decided that existing programs require revision, a formal process is implemented to ensure program quality is maintained and enhanced.

Using the combined efforts of WIPP training and cognizant personnel, programs are revised and updated. These updates may be due to changes in task performance, modifications to equipment or noted human factors deficiencies. At the completion of program modification, cognizant line management and WIPP training must approve any revision before implementation. The amount and type of training required in the permits will be maintained, and additional training is at the discretion of the WIPP.

References for Section 8.2

1 WP 15-PS3002, *WID Controlled Document Processing, Rev. 3, February 1999*

2 WP 13.1, WIPP *Quality Assurance Program Description*

3 WP 02-AR3001, *Unreviewed Safety Questions Determination*

4 DOE Order 5480.20A, Personnel Selection, Qualification, Training Requirements for DOE Nuclear Facilities, November 15, 1994.

5 DOE Order 5480.19, Conduct Of Operations Requirements For DOE Facilities, July 9, 1990.

6 WP 14-TR.01, Rev. 1, *WIPP Training Program*, March 21, 1997.

7 WP 15-PS.2, Technical Procedure Writer's Guide, Rev. 0, March 1997

8.3 Initial Testing, In Service Equipment Monitoring , and Maintenance

8.3.1 Introduction

The MOC is responsible for testing and maintaining the equipment and systems at the WIPP.

8.3.2 Requirements

The plans and provisions for initial and in-service surveillance, are provided in DOE Order 5480.23, Nuclear Safety Analysis Reports.[1] The requirements for maintaining DOE property is provided in DOE Order 4330.4B, Maintenance Management Program.[2]

8.3.3 Initial Test Program

8.3.3.1 Start-up Testing & Preoperational Checkout

Equipment and systems important for continued and safe operation of the WIPP facility shall undergo start-up testing before operation. The testing shall verify established design criteria, prove functional requirements, and safe operation, or post modification retest, after changes are made to equipment or systems. The WIPP Start-Up Test Program, WP 09-SU.01[3] includes a program covering initiating, executing, revising, and canceling start-up test procedures; start-up documents/records control; and qualification requirements for start-up testing personnel.

8.3.3.2 Start-up Testing Program Objective

The basic objective of the Start-up Testing Program is to verify that the plant's equipment and systems operate safely, according to established plant design and approved test procedures.

8.3.3.3 Administrative Procedures for Conducting the Start-up Testing Program

Administrative procedures are established to ensure that the test procedures, before their execution, are prepared, reviewed and approved by qualified personnel. Testing shall be performed by certified individuals, and test results shall be documented and evaluated for adequacy using start-up program procedures. Test procedure changes are controlled and evaluated to ensure that changes do not adversely impact the intent of the test. Plant modifications shall be tested in the same manner as the original design. Implementation of such modifications/changes, including retesting, shall be accomplished by the latest approved applicable project and start-up program procedures.

8.3.3.4 Vendor Testing

Some equipment or system tests may be conducted at the vendor's facility according to contractual specifications; however, it is recognized that often equipment and systems can only be adequately tested after they are installed and integrated with other systems at the WIPP facility. Equipment and systems that fail vendor tests are rejected until repairs, adjustments, or modifications are completed, and failed equipment or systems are retested. Nonconformances may be authorized after evaluation by responsible engineering and management personnel.

8.3.3.5 Preoperational Checkout

Beyond vendor and start-up testing, preoperational waste handling demonstration checkouts shall be conducted using simulated waste. Simulated waste handling operations shall be performed in sequence, from receipt through final emplacement. The checkouts listed in Table 8.3-1 shall be done according to the latest approved operating procedures and preoperational checkout demonstration procedures. Preoperational checkout objectives include:

- Demonstrating that WIPP personnel can safely handle CH TRU waste packages, including unloading an internally contaminated TRUPACT
- Demonstrating the satisfactory operation of WIPP waste handling equipment
- Demonstrating that the WIPP operating procedures are comprehensive, and sufficiently detailed to perform normal waste handling operations, and to recover from off-normal occurrences encountered during waste handling operations
- Establishing the aggregate time estimate for WIPP waste handling operations
- Providing the basis for estimating the dose to be received by WIPP waste handling personnel

8.3.4 In-Service Equipment Monitoring Program

8.3.4.1 Conduct of Operations

After systems have completed the start-up processes, they are available for day-to-day operations. It is important to ensure that systems remain within their nominal performance parameters. If systems fail to operate, repairs are implemented, and operability is re-established.

The Operations Department Conduct of Operations requires that functional testing be done before equipment or systems are considered capable of performing their design function. The requirement for a Conduct of Operations program is documented in Section 5, Administrative Controls, of the TSRs in Attachment 1.

Responsibility for ongoing evaluation falls with many organizations depending on the nature of the evaluation. For example, some equipment is subjected to periodic operability checks to ensure that operating parameters are within the range allowed for reliable operations. Examples are environmental continuous air samplers (covered by WP 02-EM1012, Airborne Particulate Sampling[5]) and systems important to safe operation covered by the TSRs in Attachment 1. The following ensure that waste handling equipment is operating, and operated, in a safe manner and according to design prior to and during waste handling activities:

- A centralized checklist, maintained by Operations, will be completed prior to entering the Waste Handling Mode to meet the requirements of TSR Section 1.2.
- Periodic oversight of the preoperational checks on waste handling equipment and facility activities are conducted by WIPP management.
- The WIPP Operations Department conducts internal assessments on procedural compliance.

- Through normal conduct of operations, operators continuously review procedures for accuracy and improvement as procedures are being used. If an error or improvement is identified, WIPP management is informed to evaluate and take action to change or revise the procedure. This process ensures the effectiveness of procedures, and the safety of personnel and equipment at all times.

Other systems require periodic preventive maintenance. This is performed according to WP 10-WC3004, Preventive Maintenance Administration.[7]

Analytical and measurement equipment are entered into a calibration recall system, to ensure timely calibration and recalibration of this equipment.

8.3.4.2 Resource Conservation and Recovery Act (RCRA)

Equipment instrumental in preventing, detecting, or responding to environmental or human health hazards, such as monitoring equipment, safety and emergency equipment, security devices, and operating or structural equipment are inspected. The WIPP facility maintains a series of written procedures that include detailed inspection steps and checklists. Tables F-1 and F-2 of the RCRA Part B[6] permit application list each item or system requiring inspection.

The operational procedures assign responsibility for conducting the inspection, the frequency of each inspection, the types of problems to be watched for, what to do if items fail inspection, directions on record keeping, and inspector signature, date, and time. Inspections include identifying malfunctions, or deteriorating equipment and structures. Inspection results and data, including deficiencies, discrepancies, and corrective actions taken are recorded.

The frequency of inspections is based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction, or any operator error, goes undetected between inspections.

8.3.5 Maintenance Program

Under normal operations, equipment requiring regular maintenance is expected to remain free of hazardous materials. However, it is assumed that any equipment in waste handling areas may become contaminated. Equipment decontamination provisions include smooth surfaces, minimizing void spaces, and designing for easy removal. Floors, walls, ceilings, and structural steel surfaces in the waste handling areas have special protective coatings to simplify decontamination. Where decontamination is impractical, space is provided for installing temporary shielding, or the equipment may be removed for repair or disposal.

The WIPP is fully committed to achieving compliance with the requirements of DOE Order 4330.4B,[2] Chapter II, for essential equipment. WP 10-2, Maintenance Operations Instruction Manual;[8] WP 10-WC3002, Corrective Maintenance;[9] WP 10-WC3004, Preventive Maintenance Administration;[7] and WP 10-WC.02, Predictive Maintenance Program[10] implement DOE Order 4330.4B. All maintenance procedures will be reviewed every two years (biennially). The maintenance program set forth under DOE Order 4330.4B,[2] Chapter II has been established, developed, and implemented at the WIPP Site.

The MOC is responsible for operating the WIPP facility, including the responsibility for maintenance. The organization, responsibilities, work scope, management and control, and interfaces are prescribed in the above maintenance administrative procedures.

8.3.5.1 Waste Handling Building

The Waste Handling Building (WHB) has certain provisions incorporated above those which are required for routine maintenance activities.

Equipment in the CH TRU and RH waste handling areas is designed for contact maintenance. The hot cell equipment includes manual overrides to ensure that waste handling equipment can place waste canisters in a shielded area before maintenance is performed.

There is a crane maintenance gallery next to the hot cell, where the hot cell crane can be moved and isolated from the hot cell atmosphere without being removed from its rails. This provides shielding from RH TRU waste containers during crane maintenance or repairs. A manipulator repair room is located next to the hot cell operating gallery. The master-slave manipulators can be removed via the operating gallery, and taken to the manipulator repair room for required repair operations without personnel entering the hot cell. Hot cell equipment is modularized to the maximum extent practical, to simplify its removal when replacement or major repair is required. The facility cask and its transfer car can be taken into the RH cask receiving area for maintenance.

The Waste Shaft hoist area includes sufficient space for maintenance. An overhead handling system is included for the hoist equipment, and means are provided for transferring the hoist equipment to the ground level for maintenance or disposal.

8.3.5.2 Shafts

The mine shafts are designed for periodic inspection and maintenance. The top of the Waste Shaft cage, the Air Intake Shaft (AIS) cage, and the Salt Handling (SH) skip/cage are designed to be used as inspection platforms, with associated overhead protection bonnets installed during inspections of those shafts. Inspections in the Exhaust Shaft are conducted with remote controlled TV cameras, since there is no hoist installed in this shaft.

8.3.5.3 Subsurface Areas

Maintenance and repairs are conducted in the underground for excavating equipment, and waste handling and emplacement equipment. Waste disposal equipment that requires maintenance is surveyed and decontaminated, if required, before being taken to subsurface maintenance facilities.

In the event that the facility cask malfunctions during emplacement or retrieval operations, local maintenance equipment can be set up with local shielding, as required. Manual overrides are provided on the waste handling equipment to allow for canister transfer operations to be completed, or recovery of the canister to a safely shielded condition, if the equipment malfunctions. Normal waste-handling equipment maintenance is performed underground at the disposal horizon.

Manufacturers' recommended maintenance procedures are expected to be adequate for the underground mechanical equipment. As in any type of operation, however, regular and periodic inspections are required of all equipment and structures.

To minimize any maintenance excavation or re-excavation, all openings are designed large enough initially to allow for creep.

8.3.5.4 Air Filtering Equipment

The filter systems are periodically inspected, and filters are changed when the pressure drop across them reaches a predetermined level. If leaks are found, repairs are implemented, and the system is retested. HEPA filter testing will be conducted in accordance with ANSI N510.[4]

High Efficiency Particulate Air (HEPA) filters, associated with the underground ventilation system, are located in the Exhaust Filter Building in large filter housings. To prevent contamination from spreading, the used HEPA filters are removed and bagged within the housing for disposal. Access to the filter chamber room, where the housings are located, is through an air lock that provides a boundary to prevent the spread of contamination. Positive airflow into the filter chamber room is maintained during the filter change-out activity. Personnel working within the plenum are provided with protective clothing and respiratory protective equipment.

For the WHB HEPA filters and other smaller filter systems, personnel replacing filters wear suitable protective clothing and carry respiratory equipment. However, they do not enter the housings. Contaminated filters are bagged before they are removed to prevent contamination from spreading during filter change-out. Filter housing maintenance, except for cleaning, is unnecessary.

8.3.5.5 Equipment Decontamination Provisions

Contaminated items are bagged and are then disposed of as radioactive wastes, or decontaminated in a designated area. Decontamination of waste transporters, by wiping with damp rags as frequently as necessary, can be accommodated in either the CH TRU or RH TRU unloading area.

The general decontamination philosophy for the WIPP is to minimize the amounts of waste generated due to decontamination operations, and is accomplished by wiping with damp rags soaked in detergent or a decontamination solution.

8.3.5.6 Other Surface Structures

Surface structures other than the WHB and the Exhaust Filter Building (EFB) are associated with either direct support activities (switchyards, substation, sewage treatment, backup power, shaft headframe, and hoist houses), or indirect support activities (Warehouse Building). These facilities contain systems that require routine maintenance according to common industrial practice and manufacturers' recommendations. No special or unusual maintenance features are incorporated in the design of these facilities.

References for Section 8.3

1 DOE Order 5480.23, Nuclear Safety Analysis Reports, April 10, 1992.

2 DOE Order 4330.4B, Maintenance Management Program, February 10, 1994.

3 WP 09-SU.01, WIPP Start-Up Test Program, Rev. 0, April 1998

4 ANSI N510, American National Standards Institute, Standard for Testing of Nuclear Air Cleaning Systems.

5 WP 02-EM1012, Airborne Particulate Sampling, Rev. 1, July 17, 1998.

6 DOE/WIPP 91-005, Resource Conservation and Recovery Act Part B Application, Rev.6.

7 WP 10-WC3004, Preventive Maintenance Administration, Rev. 2, March 1999.

8 WP 10-2, Maintenance Operations Instruction Manual, Rev.1, November 13, 1997.

9 WP 10-WC3002, Corrective Maintenance, Rev. 3, May 5, 1997.

10 WP 10-WC.02, Predictive Maintenance Program, Rev. 0, June 1997.

Table 8.3-1, WIPP Preoperational Checkout Program

Test Title	Plant Condition	Test Objectives
CH Waste Handling	Before receiving CH Waste	Verify all systems associated with the CH waste disposal function as described in Section 4.3.1.
RH TRU Waste Handling System	Before receiving RH TRU Waste	Verify all systems associated with the RH TRU waste disposal function as described in Section 4.3.2.

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8.4 Operational Safety

8.4.1 Introduction

The MOC ensures that all operations are conducted according to DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities.[1] The SAR considers the term "operations" as reflecting those daily activities, resources, management, and communication required to support the WIPP in meeting goals and objectives for the intended facility purpose.

Operation of the facility will be according to approved operation procedures, TSRs, and good operating practices. Supervisors are responsible for reporting to the Facility Shift Manager (FSM) any conditions that may affect the operation or operability of the facility. Supervisors must obtain approval for the operation and/or maintenance of the plant equipment and system through the Plan-of-the-Day (POD).

Pre-job briefings will be conducted regularly by supervisors before the evolution for new or complex activities, to ensure that they are completed safely, correctly, and efficiently.

8.4.2 Requirements

The MOC's Conduct of Operations is directed by DOE Order 5480.19,[1] and is implemented by WP 04-CO, Conduct of Operations.[2]

8.4.3 Conduct of Operations

8.4.3.1 Controlled Access Area Activities

Entry to controlled access areas will be limited to persons who need to be in the area on required business. This access will be granted by the control area operator. Additionally, Facility Operations management and designated Operations Assistance Team (OAT) personnel, are granted unrestricted access to the Central Monitoring Room (CMR).

Only persons specifically authorized by administrative procedures may operate controlled area equipment.

8.4.3.2 Communications within the Facility

Timely communication within the facility is enabled by the: public address (PA) system which includes Site Notification System, radios, beepers, mine pagers and phones, and touch-tone telephones. When making site-wide announcements, the Central Monitoring Room Operator (CMRO) will use the PA system (including the Site Notification System [SNS]), and the mine phone.

Personnel notification is accomplished by flashing lights, vibrating personnel pagers, or by persons dedicated to notifying personnel working in areas where the PA system cannot be heard. Emergency communication PA systems will be periodically tested to ensure functionality.

8.4.3.3 Control of On-Shift Training

On-Shift training will be conducted by Level 1 Instructors. A qualified subject matter expert (SME) or On-the Job Training Evaluator (OJTE) will observe trainee performance skills to ensure that no adverse actions occur. Procedure steps, cautions, and notes must be discussed with the instructor before operating any equipment until the student has demonstrated proficiency in performing a skill. Trainees will continue being monitored until demonstrating the proper proficiency.

Training procedures provide documentation guidance for operator qualification and certification programs. Qualification cards will be signed by the SME, documenting that the trainee has successfully and adequately demonstrated proficiency of that skill.

8.4.3.4 Control of Equipment and System Status

The FSM is responsible for maintaining proper configuration, and authorizing changes of general surface and underground equipment, and defense-in-depth equipment and systems. The respective manager or supervisor is responsible for maintaining proper configuration for other activities including: hoisting equipment, waste handling equipment, and systems.

Equipment and systems will be checked for proper alignment before placing the equipment or system into operation. Checklists will be used to ensure that equipment is controlled, checked, and monitored. Following maintenance, equipment will be checked for proper alignment before being returned to operation.

A system is in place to monitor the status of on-site alarms. Procedures initiating appropriate action are in place to monitor equipment parameters for abnormal conditions that could be masked by deficient alarms.

Programs are in place to ensure that operating personnel receive and use the latest revisions or changes to engineering drawings and/or specifications.

8.4.3.5 Lockouts and Tagouts

WP 12-IS.01, Industrial Safety Program,[3] and procedure WP 04-AD3011, Equipment Tagout/Lockout[4] sets forth the policy requiring each employee to properly implement the requirements of DOE Order 5480.19,[1] Chapter IX, to protect personnel, DOE property and plant systems, and prior to entry into a high energy system. This procedure provides for placing, removing, and auditing Operations tags and locks for configuration control, and in addition, provides for caution tags. When conducting maintenance activities, equipment tagout/lockout uses WP 10-AD3005, Control and Use of Maintenance Locks,[6] which complies with DOE Order 5480.19[1] and 29 CFR 1910.147.[7]

8.4.3.6 Independent Verification

Independent Verification is performed on Defense-in-Depth Structures, Systems, and Components when circumstances warrant.

Individuals performing independent verification will be instructed and trained in the appropriate techniques for verifying the correct position of facility components, and will perform the necessary checks in accordance with documented procedures and guidelines.

8.4.3.7 Log Keeping

Logbooks will be kept at all key shift positions, as determined by the importance of the sequential information related to shift events, and the importance of the shift position regarding establishing or maintaining regulatory or DOE requirements.

As a minimum, a logbook will be maintained by the FSM or the CMRO. Information will be recorded accurately and efficiently, following guidance in WP 04-CO, *Conduct of Operations* ,[2] and WP 04-AD3008, *Shift Operating Logs*.[5]

8.4.3.8 Operations Turnover

The Operations Turnover process, as defined in WP 04-CO, *Conduct of Operations*,[2] ensures that during the supervisory turnover process, any conditions related to abnormal lineups, status of major components, surveillance planned or in progress, or evolutions planned or in progress are reported to the oncoming supervisor.

Oncoming personnel and supervisors will conduct a comprehensive review of appropriate written and visual information, as described in WP 04-CO, *Conduct of Operations,*[2] before responsibility for the shift position is transferred. The off-going supervisor will explain all items noted, at a time when facility conditions are stable to the oncoming personnel.

8.4.3.9 Operational Occurrences

WP 12-ES3918 , Reporting Occurrences in Accordance with DOE Order 232.1A,[8] establishes a system for reporting events to the Facility Manager (FM)/Facility Manager Designee (FMD) for categorization of Off-Normal and Unusual occurrences. Operational Emergencies are categorized per WP 12-ER3904,[9] Categorization and Classification of Operational Emergencies which refers to WP 12-ES3918[8] for the less severe events. Events reported to the FM/FMD are categorized within two hours of discovery per the criteria listed in Attachment 1 of WP 12-ES3918.[8] Events are categorized as off-normal, unusual, or emergency occurrences based upon the severity of the incident. All occurrences are investigated and documented per the requirements of 15-MD3102, Event Investigation and Root Cause Analysis ,[10] to determine the root cause, direct cause, and contributing cause. In addition, corrective actions are developed, scheduled, and lessons learned identified. A Notification Report shall be prepared by the FM/FMD, and uploaded into the Occurrence Reporting Processing System (ORPS) database before the close of the next business day from the time of categorization, not to exceed 80 hours. A 10-Day Occurrence Report shall be prepared by the FM/FMD, and uploaded into the ORPS database within 10 working days of categorization, using the information available at the time. A Final Occurrence Report shall be prepared by the FM/FMD, and uploaded into the ORPS database within 45 days of categorization of the occurrence.

8.4.4 Fire Protection

The fire protection program at the WIPP facility ensures the safety of plant personnel, the reliability and continuity of plant operations, and the minimization of property loss. These objectives are met by incorporating automatic fire suppression systems, using fire resistant materials in facility construction, providing fire barriers and fire doors in areas susceptible to fires, and enclosing vertical openings in buildings, thereby preventing the spread of fires.

8.4.4.1 Fire Hazards

The fire hazards at the WIPP due to electrical equipment failure, spontaneous ignition, highly flammable materials, maintenance activities, fuel storage, and office materials are considered to be normal industrial-type fires, and could occur in any site area.

8.4.4.2 Fire Protection Program and Organization

Responsibility for the fire protection program is assigned to the General Manager (GM), while administration, formulation, and implementation of the program is assigned to the manager of Environment, Safety and Health, (ES&H).

8.4.4.3 Combustible Loading Control

The objectives for fire protection at the WIPP facility are to ensure the safety of plant personnel, the reliability and continuity of plant operations, and to minimize property loss. To meet these objectives, the WIPP facility design incorporates the following features:

- With the exceptions of some temporary and other noncritical structures (such as the off-site air monitoring system), all buildings and their support structures are protected by fixed, automatic fire suppression systems designed to the specific, individual hazards of each area. Each building is evaluated annually to determine the fire risk associated with the occupancy.

- Noncombustible construction, fireproof masonry construction, and fire resistant materials are used whenever possible.

- Areas susceptible to fire are separated by fire walls and fire doors, to contain and isolate hazardous materials or operations. Fire separations are installed where required because of different occupancies, per the Uniform Building Code (UBC).

- All vertical openings in buildings are protected by enclosing stairways, elevators, pipeways, electrical penetrations, etc., to prevent fire from spreading to upper floors.

- The exhaust ventilation systems, which remove hot fire gases, toxic contaminants, and explosive gases and smoke, are designed with a high fire integrity.

- The components of the electric service and distribution systems are listed by Underwriters' Laboratory, or approved by Factory Mutual Engineering Corporation. These systems are installed to minimize possible ignition of flammable material and maximize safety.

As part of the improved risk fire protection program, certain passive and active design features including area separation, noncombustible construction, fixed fire suppression systems (water and dry chemical), and manual fire suppression capabilities are used.

To ensure reliability of the active fire protection systems, inspection, testing, and maintenance programs are provided. There are also administrative controls for the fire system impairments, hot work and internal audits of the inspection, testing and maintenance, and other program elements essential to the maintenance of an improved risk fire protection program, as required by DOE orders.

8.4.4.4 Fire Fighting Capabilities

Facilities, equipment, and trained personnel are available to provide the following emergency services for the WIPP facility:

- Fire fighting
- Emergency medical response
- Industrial rescue
- Mine rescue
- Hazardous material response and control

Fire fighting capability includes a fully-equipped pumper engine, associated firefighting equipment, and trained fire fighters. Firefighting activities are led by an emergency services technician (EST) or fire protection technician (FPT), on duty 24 hours a day. Backup fire fighting personnel are provided using cross-trained personnel.

The ESTs/FPTs are state-licensed emergency medical technicians, and provide 24-hour emergency medical response capability at the WIPP facility. During the day shift, a full-time registered nurse is on the site. A fully-equipped first-aid room, ambulance, underground ambulance, and rescue vehicle are available to provide basic life support activities.

The ESTs/FPTs also provide industrial rescue for vehicle accidents, confined space extrication, and other industrial incidents. The technicians provide rope rescue through the use of state-of-the-art hydraulic and manual equipment.

Mine rescue services are provided using two trained mine rescue teams at the WIPP facility. These teams are fully trained in the use of mine rescue procedures and techniques, as well as the use of self-contained breathing apparatus and firefighting equipment. A mine rescue station has been developed and equipped with MSHA-approved, properly maintained, self-contained breathing apparatuses, mine rescue supplies, and required spare parts.

The WIPP facility utilizes numerous materials that meet the NFPA, EPA, or DOT classifications as a hazardous material. The emergency preparedness staff has the equipment and trained personnel necessary to respond to, and control spills and leaks of these materials, and, in some cases, clean up the spills for the protection of life, health, property, and the environment.

An Emergency Management Program has been prepared for the WIPP facility. The WIPP Emergency Management Program[11] provide an organized plan of action for dealing with identified credible emergencies at the WIPP. The plan identifies lines of authority, the responsibilities of emergency response personnel and organizations, and the WIPP manpower and equipment resources available to cope with emergencies.

8.4.4.5 Fire Fighting Readiness Assurance

Exercises and drills are used to demonstrate the effectiveness of the established Emergency Management Program. Evaluations of these exercises ensure an effective and efficient program is in place, and that it is truly capable of mitigating the credible emergency scenarios. Exercises and drills are conducted on a regularly scheduled basis for all WIPP facility response personnel and equipment. WIPP facility Emergency Management promotes involvement in emergency response activities outside the scope of the

WIPP facility. In an effort to maintain a high level of skill level, interest and motivation among response personnel, various response teams participate in local, regional, and national competitions.

The safety program is objectively evaluated by trend analysis, and by determining current status of training, inspections, sampling, monitoring, drills and exercises, and accident frequency. In addition, assessments of the safety program include those conducted by the DOE-CAO.

References for 8.4

1 DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities, July 9, 1990.

2 WP 04-CO, Conduct of Operations, Rev. 1, December 1997.

3 WP 12-IS.01, Industrial Safety Program, Rev. 1, November 21, 1997.

4 WP 04-AD3011, Equipment Tagout/Lockout, Rev. 2, November 15, 1996.

5 WP 04-AD3008, *Shift Operating Logs*, Rev. 0, August 23, 1996.

6 WP 10-AD3005, Control and Use of Maintenance Locks, Rev. 1, January 12, 1996.

7 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout), September 20, 1990.

8 WP 12-ES3918, Reporting Occurrences in Accordance with DOE Order 232.1A, Rev. 0, February 15, 1996.

9 WP 12-ER3904, Categorization and Classification of Operational Emergencies, Rev. 1, March 31, 1997.

10 15-MD3102, Event Investigation and Root Cause Analysis, Rev. 0, September 15, 1997.

11 WP 12-9, WIPP Emergency Management Program, Rev. 11, February 14, 1997.

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8.5 Emergency Preparedness Program

8.5.1 Introduction

This section briefly describes the significant aspects of the Emergency Preparedness Program. The Emergency Preparedness Program is implemented through WP 12-9, WIPP Emergency Management Program.[1] The WIPP Emergency Management Program will be followed to minimize the impact of emergency events upon the health and safety of plant personnel, the general public, the environment, and the WIPP mission. In events concerning hazardous materials/waste, WP 02-12, WIPP Contingency Plan[2] shall be implemented.

The Emergency Response Program at the WIPP consists of three manuals: the Emergency Management Program;[1] the Contingency Plan;[2] and, WP 12-ER, Emergency Response Procedures.[3]

The WIPP facility Emergency Management Program applies to all personnel employed at, or assigned to the WIPP facility, and defines emergency response roles and responsibilities. The facility Emergency Management Program does not include any required DOE radiological response to transportation accidents that occur away from the facility. Such DOE response, if requested by the state, is directed by the cognizant DOE Operations Office. WIPP facility personnel will be available to support local and state organizations in such cases, as directed by the DOE Albuquerque Operations Office.

8.5.2 Requirements

The Emergency Preparedness Program establishes the requirements and procedures in compliance with the following:

- DOE Order 151.1, Comprehensive Emergency Management System[4]
- DOE Order 232.1 , Occurrence Reporting and Processing of Operations Information[5]
- 40 CFR 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities[6]
- 40 CFR 265, Subpart D, Contingency Plan and Emergency Procedures[7]
- 40 CFR 265.37, Arrangements with Local Authorities[8]
- 40 CFR 265.52 (c), Content of Contingency Plan[9]
- 29 CFR 1910.120, Paragraph (p), Certain Operations Conducted Under the Resource Conservation and Recovery Act of 1976 (RCRA)[16]

8.5.3 Scope of Emergency Preparedness

The Emergency Preparedness Program applies to safety response actions relative to the following:

- Radiological emergencies
- Underground emergencies
- Industrial emergencies
- Security emergencies

8.5.4 Emergency Preparedness Planning

Emergency Preparedness is addressed by the WIPP Emergency Management Program. The plan identifies necessary actions for dealing with site-wide and area emergencies, and defines the lines of authority. Responsibilities of emergency response personnel and organizations are detailed in the Program, including a discussion of the WIPP labor and resources required.

Operational Emergencies at the WIPP are classified by Emergency Action Levels (EALs) that provide specific predetermined criteria allowing WIPP emergency personnel to categorize Operational Emergencies. The classification of Operational Emergencies is detailed in procedure WP 12-ER3904, Categorization and Classification of Operational Emergencies.[10]

8.5.4.1 Emergency Response Organization

The Emergency Operations Center (EOC) may be activated depending on the severity or type of emergency. Upon activation of the EOC, the Crisis Manager (CM) directs emergency response actions. These actions may involve DOE facilities in Carlsbad. Management of an emergency depends on the time and location of the event as determined by the FSM or CM. The FSM directs the event until the EOC is activated. Upon activation of the EOC, the WIPP program provides for immediate management response, and for proper notifications made during an emergency.

The WIPP also has in place a Crisis Management Team (CMT), an executive decision-making group tasked specifically to respond to emergencies. The WID GM, or designated alternate, will function as the CM. The CMT consists of several personnel experienced in dealing with emergencies. The WIPP tactics team may be activated with the CMT, to provide technical, logistical, and administrative support. Individuals on these teams are governed by specific directions found within the WIPP Emergency Management Program.[1]

All on-site emergencies shall be reported immediately to the CMRO, where specific information will be gathered relating to that incident.

8.5.4.2 Assessment Actions

Initial radiological release dose to the public calculations are performed in accordance with WP 12-RE3000, *Radiological Engineering Activities*.[12]

The DOE, WID, New Mexico Environment Department (NMED), and the Environmental Evaluation Group (EEG) have signed a protocol[13] that is an agreement for WID to provide NMED and EEG with routine and non-routine (radiation alarm) effluent sample filters for independent analysis. The methods for sample filter transfer to NMED and EEG are described in the protocol,[13] and in WP 12-HP3500, *Airborne Radioactivity*.[14]

8.5.4.3 Notification

The WIPP Emergency Management Program[1] describes the off-site notification procedure, and maintains project credibility by providing timely and accurate information dissemination to the maximum extent permitted by the emergency situation. These emergencies include: sabotage, bombing, kidnaping, hostage incident, natural disaster, or highway accident involving a WIPP shipment.

8.5.4.4 Emergency Facilities and Equipment

Facilities and equipment related to emergency response are closely monitored at the WIPP. Monthly surveillance of items such as radios, telephones, and computers are conducted using a checklist and surveillance log.

8.5.4.5 Memoranda of Understanding and/or Agreements

Memoranda of Understanding (MOUs) between the WIPP and several key community organizations are important aspects of the available protective actions governed by legal cooperation agreements. A tabular summary of these Agreements including their purpose is as follows:

- JOINT POWERS AGREEMENT BETWEEN THE UNITED STATES DEPARTMENT OF ENERGY AND THE CITY OF CARLSBAD AND THE COUNTY OF EDDY AND NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT FOR A JOINT-USE ALTERNATE EMERGENCY OPERATIONS CENTER. This MOU directs that the parties involved shall share in establishing and maintaining an alternate EOC.

- MUTUAL AID FIRE FIGHTING AGREEMENT BETWEEN THE EDDY COUNTY COMMISSION AND THE U.S. DEPARTMENT OF ENERGY. This Agreement provides for the actual assistance of the parties in the furnishing of fire protection for the Eddy County Fire District and the WIPP Site.

- FEDERAL BUREAU OF INVESTIGATION/DEPARTMENT OF ENERGY MEMORANDUM OF UNDERSTANDING. This MOU deals with threats and criminal acts associated with theft, sabotage, or hostage attempts against the DOE-AL sites within the state of New Mexico.

- MEMORANDUM OF UNDERSTANDING BETWEEN THE DOE AND THE U.S. DEPARTMENT OF INTERIOR, ROSWELL DISTRICT. This agreement provides for a fire-management program that will ensure a timely, well-coordinated, and cost-effective response to suppress wild fire within the land withdrawal area.

- MEMORANDUM OF UNDERSTANDING BETWEEN THE UNITED STATES DEPARTMENT OF ENERGY AND THE NEW MEXICO DEPARTMENT OF PUBLIC SAFETY CONCERNING MUTUAL ASSISTANCE AND EMERGENCY MANAGEMENT. The MOU applies to any actual or potential emergency or incident that: involves a significant threat to employees, or the public; involves DOE property; involves threat to environment reportable to an off-site organization; requires combined resources of the DOE and the State; requires DOE resources unavailable from the State or vice versa; involves any other incident for which a joint determination has been made by the DOE and the State that the provisions of this MOU will apply.

- AGREEMENT BETWEEN CAO MANAGER, U.S. DEPARTMENT OF ENERGY, MISSISSIPPI POTASH INC., and IMC Kalium. This Agreement provides for mine operators having two mine rescue teams available whenever miners are underground, and backup rescue capability is deemed desirable.

- MEMORANDUM OF UNDERSTANDING: EMERGENCY RADIOLOGICAL TREATMENT CENTER FOR THE WASTE ISOLATION PILOT PLANT PROJECT BETWEEN THE U.S. DEPARTMENT OF ENERGY AND GUADALUPE MEDICAL CENTER. (The name of the medical center has been changed to Carlsbad Medical Center.) This MOU provides for an

Emergency Radiological Treatment Center (ERTC) at the GUADALUPE Medical Center.

- MUTUAL AID AGREEMENT BETWEEN THE CITY OF CARLSBAD AND THE U.S. DEPARTMENT OF ENERGY. This Agreement authorizes assistance in times of declared emergency where the enormity of the emergency exceeds the response capability of the responsible jurisdiction.

- MUTUAL AID AGREEMENT BETWEEN THE CITY OF HOBBS AND THE U.S. DEPARTMENT OF ENERGY. This Agreement authorizes assistance in times of declared emergency where the magnitude of the emergency exceeds the response capability of the responsible organization.

- INTERAGENCY AGREEMENT BETWEEN THE U. S. BUREAU OF LAND MANAGEMENT AND THE U. S. DOE, AND THE U. S. NATIONAL PARK SERVICE (NPS), AND THE U. S. FOREST SERVICE. This Agreement provides for assistance in search and rescue missions and training.

- MEMORANDUM OF UNDERSTANDING BETWEEN U.S. DOE AND LEA REGIONAL HOSPITAL (L. H.). This MOU provides for an Emergency Radiological Treatment Center (ERTC) at LEA REGIONAL HOSPITAL.

8.5.4.6 Training and Exercises

Emergency management training consists of formal classroom instruction, self-paced training modules, on-the-job training, drills and exercises. This training allows all emergency management related participants to function safely and skillfully. Individuals participating in these areas must be trained before they are allowed to assist in emergencies.

The Emergency Management Section has developed a procedure for the effective management of drills and exercises. A coordinated program of drills and exercises enhances the ability of specialized teams and individual personnel to respond to potentially adverse situations. The Emergency Management Section conducts a variety of drills and exercises.

A full participation exercise is conducted periodically to demonstrate an integrated emergency response capability. The integrated exercise includes Federal, state, local, regulatory, and/or emergency response organizations which may include DOE/HQ, DOE/AL, and CAO participants.

8.5.4.7 Reentry and Recovery

Guidance for the reentry and recovery following an emergency is based on regard for human life, and conditions existing at the time. The recovery process detailed in WP 12-ER3903, Event Recovery,[15] evaluates the proposed actions by comparing the risks of the hazards to the actual or potential benefits to be gained.

References for Section 8.5

1 WP 12-9, WIPP Emergency Management Program, Rev. 11, February 14, 1997.

2 WP 02-12, WIPP Contingency Plan, Rev. 6, March 11, 1999.

3 WP 12-ER, Emergency Response Procedures.

4 DOE Order 151.1, Comprehensive Emergency Management System, October 26, 1995.

5 DOE Order 232.1 , Occurrence Reporting and Processing of Operations Information, September 25,1995.

6 40 CFR 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, June 1993.

7 40 CFR 265, Subpart D, Contingency Plan and Emergency Procedures, May 1980.

8 40 CFR 265.37, Arrangements with Local Authorities, May 1980.

9 40 CFR 265.52 (c), Content of Contingency Plan, May 1980.

10 WP 12-ER3904, Categorization and Classification of Operational Emergencies, Rev. 1, March 31, 1997.

11 International Commission on Radiation Protection-30, 1979 to 1982.

12 WP 12-RE3000, Radiological Engineering Activities, Rev. 3, April 25, 1997.

13 Protocol for providing Effluent Monitoring System Filters to the New Mexico Environment Department and the Environmental Evaluation Group, November 1992.

14 WP 12-HP3500, Airborne Radioactivity, Rev. 3, April 7, 1999.

15 WP 12-ER3903, Event Recovery, Rev. 1, March 21, 1997.

16 29 CFR 1910.120, Paragraph (p), Certain Operations Conducted Under the Resource Conservation and Recovery Act of 1976 (RCRA).

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8.6 Security

8.6.1 Introduction

This section describes the measures taken at the Waste Isolation Pilot Plant (WIPP) during the Disposal Phase to prevent hazards. It describes the security equipment and procedures in place at the WIPP facility that continuously monitor and control entry into the active portion of the facility or Property Protection Area (PPA), as described in Chapter 2, including 24-hour security surveillance, fencing, and signs.

8.6.2 Security Procedures and Equipment

The design and operation of the WIPP facility are specifically planned to fully meet security requirements. The WIPP facility has 24-hour security surveillance, and the means to control entry to the PPA. In addition, warning signs are provided.

8.6.3 24-Hour Surveillance Systems

The WIPP facility's 24-hour surveillance system consists of security officers that provide protection 24 hours per day, 365 days per year. Security officers work to written procedures that require visitors, contractors, and vendors to log in before they are allowed to proceed to the Main Gate for access into the PPA, and require continuous monitoring of the active portion of the facility.

The major duties of the security officers are to control personnel, vehicle, and material access/egress 24 hours per day, 365 days per year. During non-operational hours, the security officers conduct documented security patrols outside of the PPA, at a minimum rate of two per 12-hour shift, as well as inside of the PPA at a rate of one every two hours. In addition to the security officers, WIPP facility employees are called upon to challenge any person in the WIPP facility who is not wearing a badge, or who is not under escort when an escort is required. Further physical protection is provided by fences, protective lighting, and locked buildings.

8.6.4 Barrier and Means to Control Entry

8.6.4.1 Barrier

The surface portion of the WIPP facility PPA is contained within a 35 acre (14 hectares) fenced area. This area is surrounded by a permanent 7 ft (2.13 m) high chain-link fence, topped by three strands of barbed wire, for a total height of 8 ft (2.44 m). The fence encloses major surface structures. The regularly inspected chain-link fencing at the WIPP facility completely surrounds the active portions of the facility. Access is normally through the Main Gate on the west side of the PPA. Two other gates are available for emergency use. One of these gates is opened to allow salt trucks access to the salt pile. Use of all gates is under the supervision of security.

8.6.4.2 Means to Control Entry

Entry into the PPA, whether by personnel or vehicles, is through controlled gates and doors. WIPP-facility access-control procedures are designed to ensure that only properly identified and authorized persons, vehicles, and property are allowed entrance to and exit from the facility. A personnel identification and access control system is maintained within the facility. Employees identify themselves with an identification badge when entering or leaving the premises. Security officers require visitors to show proper authorization before allowing them to enter the facility. In addition, visitors are required to wear a temporary badge, and may require an authorized escort.

8.6.5 Warning Signs

The permanent chain-link fence surrounding the PPA is posted at approximately 50 ft (15.24 m) intervals with DOE "No Trespassing" signs, and with "Danger: Authorized Personnel Only" signs in English and Spanish. The signs are legible from a distance of 25 ft (7.62 m), and can be seen from any approach to the facility. These same signs, plus security and traffic signs, are also located on the controlled gates.