WASTE ISOLATION PILOT PLANT CONTACT HANDLED (CH) TECHNICAL SAFETY REQUIREMENTS

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Washington TRU Solutions LLC

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TECHNICAL SAFETY REQUIREMENTS
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ABBREVIATIONS AND ACRONYMS

AC	Administrative Control
CFR	Code of Federal Regulations
CH	Contact-Handled
CMR	Central Monitoring Room
DBE	Design Basis Earthquake
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DSA	Documented Safety Analysis
FGE	Fissile Gram Equivalent
ITV	Inspector's Test Valve
LCO	Limiting Conditions of Operation
LCS	Limiting Control Setting
NFPA	National Fire Protection Association
PAC	PROGRAMMATIC ADMINISTRATIVE CONTROLS
PE-Ci	Pu-239 Equivalent Curie
PIV	Post Indicator Valve
PPA	Property Protection Area
psi	Pounds per square inch
psig	Pounds per square inch gauge
SAC	SPECIFIC ADMINISTRATIVE CONTROLS
SL	Safety Limits
SMP	Safety Management Program
SR	Surveillance Requirement
SSCs	Structures, Systems, and Components
SWB	Standard Waste Box
TDOP	Ten-Drum Overpack
TRU	Transuranic
TSR	TECHNICAL SAFETY REQUIREMENTS
USQ	Unreviewed Safety Question
WHB	Waste Handling Building
WIPP	Waste Isolation Pilot Plant

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Section 1

Use and Application

TECHNICAL SAFETY REQUIREMENTS

1.0 USE AND APPLICATION

1.1 Introduction and Scope

1.1.1 TECHNICAL SAFETY REQUIREMENT Applicability

This document contains the Waste Isolation Pilot Plant (WIPP) Contact-Handled (CH) Transuranic (TRU) Waste TECHNICAL SAFETY REQUIREMENTS (TSRs) that define the performance requirements of structures, systems, and components (SSCs), ADMINISTRATIVE CONTROLs, and DESIGN FEATUREs to ensure safe operation of WIPP. CH WASTE handling activities performed at WIPP are governed by the *WIPP CH Waste Documented Safety Analysis* (CH DSA).[1]

1.1.2 Methodology

This TSR document is prepared in accordance with guidance contained in Title 10 *Code of Federal Regulations* (CFR), Part 830, Subpart B, "Safety Basis Requirements."[2] The derivation of TSRs and operational controls are contained in Chapter 5 of the CH DSA.[1]

1.2 Definitions

----------NOTE----------

The definitions provided in this section are specifically applicable to the TSR, and they are displayed in uppercase letters throughout this TSR document.

TERM	DEFINITION
ACTIONS	The steps listed in each requirement that are required to be performed when the specified LIMITING CONDITION FOR OPERATION (LCO) is not met.
ACTIVE DISPOSAL ROOM	The disposal room in the UNDERGROUND in which WASTE is actively being emplaced.
ADMINISTRATIVE CONTROL	Provisions relating to safety management programs (SMPs) necessary to ensure safe operations. ADMINISTRATIVE CONTROLs (ACs) may be Programmatic or Specific.
AFFECTED AREA	The area where the required fire suppression system coverage is not provided. The AFFECTED AREA is situationally determined.
CLOSED TRUPACT-II or HalfPACT	Refers to a TRUPACT-II or HalfPACT in which the inner containment vessel lid and outer lid is sealed for transporting WASTE.
DESIGN FEATURE	Normally passive characteristics (e.g., shielding, structural walls, SSC locations) of the facility not subject to change by operations personnel. DESIGN FEATUREs are controlled through configuration management to protect safety functions.

TERM	DEFINITION
DIRECT LOADED	DIRECT LOADED WASTE is untreated WASTE loaded directly into a CH WASTE container for disposal at WIPP. OVERPACKED damaged drums are treated as DIRECT LOADED WASTE.
DISPOSAL PATH	The route the WASTE travels from the waste shaft to the ACTIVE DISPOSAL ROOM.
FINES OR SHAVINGS	For the purposes of WIPP Criticality Safety, FINES OR SHAVINGS means that the beryllium in the WASTE is not large-shaped or classified, and is distributed in the WASTE such that beryllium does not exceed 75 percent (1.3875 g/cm^3 [grams per cubic centimeter]) of its full theoretical density.
FIRE WATCH	Continuous inspection of an area for the purpose of looking for fire initiators or evidence of a fire in progress. Persons performing a FIRE WATCH look for and report fire or conditions that could cause a fire. In addition this person must be qualified to recognize and extinguish an incipient fire or alert the appropriate personnel of the condition. During a FIRE WATCH the area is constantly monitored and will not be left unattended. However, a FIRE WATCH is only applicable for WASTE HANDLING vehicles, when the vehicle is in use for WASTE HANDLING.
FREQUENCY	How often a specific surveillance must be performed.
IMMEDIATELY	As a completion time, to be initiated directly and completed as soon as possible, with the minimal amount of time required to safely complete the activity.
INOPERABLE/ INOPERABILITY	Not OPERABLE
LIMITING CONDITIONS FOR OPERATION (LCOs)	The lowest functional capability or performance level of equipment, restrictive parameters, or states required for safe operation.
MODE	Any one inclusive combination of applicable PROCESS AREA conditions used for assigning applicability of safety equipment and limits as specified in Table 1.3-1 with respect to the relative hazards present.
OPERABLE/ OPERABILITY	A system, subsystem, component, or device shall be OPERABLE when it is capable of performing its specified function(s); and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication, or other auxiliary equipment that are required for the system, subsystem, component, or device to perform its specified function(s) are also capable of performing their related support function(s). Successful completion of SURVEILLANCE REQUIREMENTS within the specified FREQUENCY is required to declare a system, subsystem, component, or device as being OPERABLE.

TERM	DEFINITION
OVERPACKED/ OVERPACK	A WASTE container enclosed within another WASTE container. For undamaged drums this provides an additional barrier should a breach occur. OVERPACKED damaged drums are treated as DIRECT LOADED WASTE.
PROCESS AREA	A defined area in the facility that may consist of a room, several rooms, or an entire area. A PROCESS AREA may be a portion of a facility or an entire facility area covered by a particular operation or procedure. (See Table 1.2-1 for PROCESS AREA description.)
PROGRAMMATIC ADMINISTRATIVE CONTROL	PROGRAMMATIC ADMINISTRATIVE CONTROLs (PACs) are designed to provide broad programmatic support for SMPs supporting defense-in-depth, or worker safety. PACs are not used to provide specific preventive or mitigative functions for accident scenarios identified in DSAs.
SPECIFIC ADMINISTRATIVE CONTROL	An AC that provides a specific preventive or mitigative function for accident scenarios identified in the DSA where safety function has importance similar to, or the same as, the safety function of a safety SSC (e.g., discrete operator actions, combustible loading program limits, hazardous material limits protecting hazard analyses or facility categorization). A Violation of SPECIFIC ADMINISTRATIVE CONTROLs (SACs) is an immediate TSR Violation.
SURVEILLANCE REQUIREMENTS	Requirements relating to testing, calibration, or inspection to ensure that the necessary OPERABILITY of SSCs is maintained or that operations are within the specified LCOs.
TECHNICAL SAFETY REQUIREMENT	The limits, controls, and related actions that establish the specific parameters and requisite actions for the safe operation of a nuclear facility and include, as appropriate for the work and the hazards identified in the DSA for the facility: safety limits, operating limits, SURVEILLANCE REQUIREMENTS, administrative and management controls, use and application provisions, and design features (DESIGN FEATUREs), as well as a bases appendix.
VENTILATION CONFIGURATION	The alignment of dampers, bulkheads, and ventilation fan combinations and speeds for the UNDERGROUND ventilation system.
VERIFY	VERIFY is to confirm and substantiate that an activity or condition has been implemented in conformance with requirements. Manipulation of equipment or instrumentation to conform with the specified requirement is not permitted. Methods other than direct observation may be used.
WASTE	CH WASTE contained in drums, Standard Waste Boxes (SWBs), Ten Drum Overpacks (TDOPs) or pipe overpacks. Drums may be in drum assemblies as seven packs of 55-gallon drums, four packs of 85-gallon drums, or three packs of 100-gallon drums. Site-derived WASTE may be contained in a drum or SWB.

TERM	DEFINITION
WASTE FACE	The exposed area of the emplaced WASTE array where the WASTE is susceptible to damage from collisions, fires, explosions, and other events that lead to a release of radiological material.
WASTE HANDLING OPERATIONS	Operations involving WASTE being unloaded, transported, and/or emplaced.

Table 1.2-1 PROCESS AREA Description

PROCESS AREA Name	PROCESS AREA Description
CH BAY	The portions of the Waste Handling Building (WHB) used for CH WASTE HANDLING OPERATIONS, which includes the large bay area in which the TRUDOCKS are located, shielded storage room, conveyance car loading room (only during loading of WASTE onto the conveyance loading car and transfer of WASTE onto the waste shaft conveyance), and shaft entry room (only when WASTE is present).
SURFACE	The above-ground areas within the Property Protection Area (PPA) where WASTE is in a CLOSED TRUPACT-II or HalfPACT.
UNDERGROUND	All below-ground areas associated with WASTE disposal, including the waste shaft, DISPOSAL PATH, and ACTIVE DISPOSAL ROOM.

1.3 Operational MODES

To aid in compliance with the WIPP LCOs, operational MODES are established to provide a safe, structured approach to facility operation. MODES reflect the relative hazards associated with different facility or process configurations; categorize the requirements placed on the facility as a convenience for operator control; and aid the operations staff in determining when the LCO is applicable. Also, MODES provide a convenient way to ensure availability of all pertinent safety functions during the current PROCESS AREA/system configuration because not all safety functions are required in each MODE. If equipment performs a safety function, but the safety function is not required in certain MODES, it would be inefficient to require the equipment to be OPERABLE when it is not needed.

The MODES defined in Table 1.3-1 for the WIPP facility are WASTE HANDLING, WASTE STORAGE, and STANDBY. The hierarchy of MODES from the highest to the lowest in relation to hazards is WASTE HANDLING, WASTE STORAGE, and STANDBY. MODE designations and changes are an administrative declaration made by the WIPP Facility Shift Manager or designee. There are certain requirements and characteristics that will be present during each MODE. The MODE definition addresses the actual performance or the capability of the WIPP facility to conduct its intended function(s).

Table 1.3-1 - MODE Descriptions

MODE	MODE Description
WASTE HANDLING	A MODE that is used for the CH BAY of the WHB when moving WASTE outside of the TRUPACT-II or HalfPACT, and UNDERGROUND during WASTE transport using the waste hoist, or moving WASTE in the DISPOSAL PATH, or emplacing WASTE in the ACTIVE DISPOSAL ROOM. While in this MODE, WASTE is being unloaded from transportation containers and transported on facility pallets to the areas designated for STORAGE, loaded on the conveyance loading car, or loaded onto the waste shaft conveyance, transported to the UNDERGROUND, off loaded from the waste shaft conveyance, transported to or emplaced in the ACTIVE DISPOSAL ROOM. While in this MODE all LCOs for operation(s) have been met and the facility is performing or is capable of performing its intended function(s). Other actives that are allowed in this MODE are maintenance, repair, and inspections as long as these activities are not in conflict with the requirements set forth in this document.
WASTE STORAGE	A MODE that is used for the CH BAY. While in this MODE, WASTE can not be physically handled, but will be temporarily stored. Other actives that are allowed in this MODE are maintenance, repair, and inspections as long as these activities are not in conflict with the requirements set forth in this document.
STANDBY	A MODE that is used for the CH BAY. While in this MODE, no WASTE outside of a CLOSED TRUPACT-II or HalfPACT can be present in the CH BAY or on the waste hoist.

1.4 Logical Connectors

Purpose

This section explains the meaning of logical connectors. Logical connectors are used to discriminate between (and yet connect) discrete conditions, ACTIONS, completion times, surveillances, and FREQUENCY(s). The only logical connectors that appear in this document are "AND" and "OR." The physical arrangement of these connectors constitutes logical conventions.

Background

Several levels of logic may be used to state ACTIONS. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each ACTION.

The first level of logic is identified by the first digit of the number assigned to an ACTION and the placement of the logical connector in the first level of nesting (e.g., left-justified with the number of the ACTION). The successive levels of logic are identified by additional digits of the ACTION number and by successive indention (within a number group) of the logical connectors.

When logical connectors are used to state a condition, usually only the first level of logic is used, and the logical connector is left-justified with the condition statement. In few cases successive levels of logic are used. This is identified solely by indenting the logical connector because subparts of a condition statement are not numbered separately.

AND connects two or more sets of criteria that must both (all) be satisfied for a given logical decision.

OR denotes alternative combinations or conditions, meaning either one or the other.

When logical connectors are used to state a completion time, surveillance, or FREQUENCY, usually only two levels of logic are used, and the logical connector is justified consistent with the logic level for statement of the completion time, surveillance, or FREQUENCY.

1.5 Completion Times

Purpose

This section establishes the completion time convention and provides guidance for its use.

Background

LCOs specify minimum requirements for ensuring safe operation of the WIPP facility. The ACTIONS associated with an LCO state the conditions required to meet the LCO. Specified with each stated condition are required ACTION(s) and completion time(s).

Completion Time

The completion time is the amount of time allowed to complete an ACTION. It is referenced to the time a situation (e.g., INOPERABLE equipment or variable not within limits) is discovered that requires entering an ACTION's condition, provided the PROCESS AREA is in a MODE or specified condition stated in the applicability portion of the LCO. ACTIONS shall be completed before the specified completion times expire. An ACTION's condition remains in effect until the condition no longer exists or the PROCESS AREA is not within the LCO applicability.

If situations are discovered that require entry into more than one condition within a single LCO (multiple conditions), the ACTIONS for each condition shall be performed within the associated completion times. When in multiple conditions, separate completion times are tracked for each condition starting from the time of discovery of the situation that required entry into the condition.

Once a condition has been entered, subsequent subsystems, components, or variables expressed in the condition discovered to be INOPERABLE or not within limits shall not result in separate entry into the condition. The ACTIONS of the condition continue to apply to each additional failure, with completion times based on initial entry into the condition.

1.6 FREQUENCY Notation

Purpose — This section defines the proper use and application of FREQUENCY requirements. Each SURVEILLANCE REQUIREMENT (SR) has a specified FREQUENCY within which the surveillance shall be performed to meet the associated LCO. An understanding of the correct application of the specified FREQUENCY is necessary for compliance with the SR.

FREQUENCY Notation — The FREQUENCY notations, as used in the SRs, and elsewhere, are defined in Table 1.6-1.

Table 1.6-1 SURVEILLANCE REQUIREMENT FREQUENCY

Notation	FREQUENCY	FREQUENCY +25% (see Note 1)
DAILY (Note 2)	24 hours	30 hours
WEEKLY	7 days	8 days
MONTHLY	31 days	38 days
QUARTERLY	92 days	115 days
ANNUALLY	365 days	456 days

NOTE 1: It is expected that all SRs will be performed within their FREQUENCY(s). This column represents the 25% extension allowed by SR 4.0.2.

NOTE 2: DAILY means that the surveillance is performed each day that the equipment/system is to be used and prior to use. If a specific piece of equipment is not used each day, then the surveillance is not performed on inactive equipment until prior to use and prior to use each following day that the equipment is in service.

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Section 2

Safety Limits

2.0 SAFETY LIMITS

Safety Limits (SLs) are limits on process variables associated with those safety class physical barriers, generally passive, that are necessary for the intended facility function and that are required to guard against the uncontrolled release of radioactive materials.

Application of the TSR selection criteria and methodology, which are based on 10 CFR Part 830, Subpart B,[2] has resulted in the identification of no process variables that require SLs.

Section 3/4

Operational Limits and SURVEILLANCE REQUIREMENTs

3/4 LCSs, LCOs, AND SURVEILLANCE REQUIREMENTS

3.0 Limiting Control Settings and LIMITING CONDITIONS FOR OPERATION

As defined in 10 CFR Part 830,[2] Limiting Control Settings (LCSs) are settings on safety systems that control process variables to preclude the exceeding of a SL. Since no SLs have been identified for inclusion in the WIPP CH TSR; no LCSs are required.

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the applicability, except as provided in LCO 3.0.2.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. If the LCO is restored before the specified completion time(s) expires, completion of the ACTIONS is not required, unless otherwise stated.

Conditions in the ACTIONS for an LCO may be concurrently applicable.

A system or component can intentionally be made INOPERABLE and the associated condition entered. The completion times for ACTIONS are applicable when a system or component is intentionally made INOPERABLE. Acceptable reasons for intentionally entering an LCO condition include, but are not limited to, performance of SRs, preventive maintenance, corrective maintenance, or investigation of operational problems.

LCO 3.0.3 When an LCO statement is not met and the associated ACTIONS are not met, or when an associated action is not provided, the applicable PROCESS AREA shall be placed in a MODE or other specified condition in which the LCO is not applicable. If the LCO is applicable in all MODES, the applicable PROCESS AREA shall be placed in a safe condition. Activities shall be initiated IMMEDIATELY to place the applicable PROCESS AREA in a safe condition. The applicable PROCESS AREA shall be in a safe condition within 6 hours. With the facility in a safe condition, a Response Plan shall be developed by the contractor and approved by the U.S. Department of Energy (DOE).

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the ACTIONS required by LCO 3.0.3 are not required.

LCO 3.0.3 is applicable in all MODES. Exceptions to LCO 3.0.3 may be stated in the individual LCOs.

LCO 3.0.4 When a LCO is not met, a MODE or other specified condition in the applicability shall not be entered, except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the applicability for an unlimited period of time. LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the applicability that are required to comply with ACTIONS.

Exceptions to LCO 3.0.4 are stated in the individual LCOs. When an individual LCO states that LCO 3.0.4 does not apply, it allows entry into MODES or other specified conditions in the applicability when the associated ACTIONS to be entered permit operation in the MODE or other specified condition for only a limited time.

LCO 3.0.5 Equipment removed from service or declared INOPERABLE to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6 When a support system is declared INOPERABLE, the supported systems are also required to be declared INOPERABLE. However, only the support system's ACTIONS are required to be entered, provided they reflect the supported system's degraded safety condition. This is a clarification of the definition of OPERABILITY.

When a support system is INOPERABLE and no LCO for that support system is specified in the TSR, the impact of the INOPERABILITY or degradation of the support system's function on the OPERABILITY of the supported system shall be evaluated. Upon determination that the supported system is INOPERABLE, the ACTIONS associated with the supported system shall apply.

4.0 SURVEILLANCE REQUIREMENTS

SR 4.0.1 SRs shall be met during the MODES or other specified conditions in the applicability for individual LCOs unless otherwise stated in the SR. Failure to meet a surveillance (whether such failure is experienced during the performance of the surveillance or between performances of the surveillance) shall constitute failure to meet the LCO. Failure to perform a surveillance within the specified FREQUENCY shall constitute failure to meet the LCO, except as provided in SR 4.0.3. Surveillances do not have to be performed on INOPERABLE equipment or variables outside specified limits.

SR 4.0.2 The specified FREQUENCY for each SR is met if the surveillance is performed within 1.25 times the interval specified in the FREQUENCY, as measured from the previous performance or as measured from the time a specified condition of the FREQUENCY is met. The 25% extension allowed is not applicable to nonperiodic SRs.

If a completion time requires periodic performance of "every...," the above FREQUENCY extension applies to each performance after the initial performance.

Exceptions to SR 4.0.2 are stated in the individual SRs.

SR 4.0.3 If it is discovered that a surveillance was not performed within its specified FREQUENCY, compliance with the requirement to declare the LCO not met may be delayed from the time of discovery up to 24 hours or up to the limit of the specified FREQUENCY, whichever is less. This delay period is permitted to allow performance of the surveillance.

If the surveillance is not performed within the delay period, the LCO shall IMMEDIATELY be declared not met, and the applicable ACTIONS shall be entered. The completion times of the ACTIONS begin IMMEDIATELY on expiration of the delay period. When the surveillance is performed within the delay period and the surveillance is not met, the LCO shall IMMEDIATELY be declared not met, and the applicable ACTIONS shall be entered. The completion times of the ACTIONS begin IMMEDIATELY on failure to meet the surveillance.

SR 4.0.4 Entry into a MODE or other specified condition in the applicability of a LCO shall not be made unless the LCO's surveillances have been met within their specified FREQUENCY. This provision shall not prevent passage through or to MODES or other specified conditions in compliance with ACTIONS.

3/4.1 FIRE PROTECTION SYSTEM

LCO 3.1.1 Fire Suppression System for the Waste Handling Building and Support Building

LCO: The fire suppression system for the WHB and the fire suppression system for the Support Building shall be OPERABLE. An OPERABLE fire suppression system consists of the following elements:

- The static pressure at each riser identified in Table 3.1.1-1 shall be greater than or equal to 125 psig (pounds per square inch gauge).
- The main isolation valves at each riser identified in Table 3.1.1-1 shall be locked in the open position.
- All other system isolation valves identified in Table 3.1.1-2 shall be locked in the open position.
- The post indicator valve(s) (PIV) identified in Table 3.1.1-1 shall be locked in the open position.
- Water flow indication when the inspector's test valve(s) (ITV) identified in Table 3.1.1-1 is opened.
- Main drain test results are less than or equal to 20% pressure change.

MODE Applicability: WASTE HANDLING and WASTE STORAGE

PROCESS AREA Applicability: CH BAY and UNDERGROUND (during WASTE transport using the waste hoist)

3/4.1 FIRE PROTECTION SYSTEM

LCO 3.1.1 Fire Suppression System for the Waste Handling Building and Support Building (continued)

Table 3.1.1-1 Riser and PIV Identification

Riser Location	Gauge Number	Main Isolation Valve and PIV Number	ITV Number
CH Bay	411-PI-003-001	FW-411-V-001 FW-Y-PIV-19 FW-412-V-006	FW-411-V-023 FW-412-V-002
OP&RR	411-PI-003-003	FW-411-V-010 FW-Y-PIV-8	FW-411-V-062
RH Bay	411-PI-003-005	FW-411-V-052 FW-Y-PIV-17	FW-411-V-042 FW-411-V044
Support Building	451-PI-009-001	FW-451-V-010 FW-Y-PIV-12	FW-451-V-008

Table 3.1.1-2 Isolation Valve Number and Location

Valve Number	Location Description
FW-411-V-072	Isolates the sprinkler piping in modular office 41-Z-052, located on WHB mezzanine.
FW-411-V-073	Isolates the sprinkler piping in the sound enclosure, located in the waste hoist control room.

3/4.1 FIRE PROTECTION SYSTEM

LCO 3.1.1 Fire Suppression System for the Waste Handling Building and Support Building (continued)

----------**NOTE**----------
Separate entry is allowed for each INOPERABLE portion of the fire suppression system
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ACTIONS

Condition	Required ACTION		Completion Time
A. The fire suppression system is determined to be INOPERABLE for the WHB	A.1	Do not introduce any additional TRUPACT-IIs or HalfPACTs with WASTE into the CH BAY and do not open CLOSED TRUPACT-IIs or HalfPACTs with WASTE in the CH BAY.	IMMEDIATELY
	AND		
	A.2	Post a FIRE WATCH in the AFFECTED AREA(s)	IMMEDIATELY
	AND		
	A.3	Stop all WASTE HANDLING OPERATIONS in the CH BAY	48 HOURS
	AND		
	A.4	Restore OPERABILITY of the affected fire suppression system	2 WEEKS
B. The fire suppression system is determined to be INOPERABLE for the Support Building	B.1	Do not introduce any additional TRUPACT-IIs or HalfPACTs with WASTE into the CH BAY and do not open CLOSED TRUPACT-IIs or HalfPACTs with WASTE in the CH BAY.	IMMEDIATELY
	AND		
	B.2	Post a FIRE WATCH in the AFFECTED AREA(s)	IMMEDIATELY
	AND		
	B.3	Restore OPERABILITY of the affected fire suppression system	2 WEEKS

3/4.1 FIRE PROTECTION SYSTEM

LCO 3.1.1 Fire Suppression System for the Waste Handling Building and Support Building (continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
4.1.1.1	VERIFY the water supply static pressure as measured at each riser to the WHB and Support Building identified in Table 3.1.1-1 is greater than or equal to 125 psig.	MONTHLY
4.1.1.2	VERIFY the main isolation valve for each riser identified in Table 3.1.1-1 is locked open.	MONTHLY
4.1.1.3	VERIFY that other isolation valves identified in Table 3.1.1-2 are locked open.	MONTHLY
4.1.1.4	VERIFY that the PIV(s) associated with each riser as identified in Table 3.1.1-1 is locked open.	MONTHLY
4.1.1.5	Open the ITV associated with each riser as identified in Table 3.1.1-1 and VERIFY water-flow through the associated system.	QUARTERLY
4.1.1.6	Perform a main drain test to VERIFY that the water supply pressure reduction is less than or equal to 20%.	ANNUALLY

3/4.1 FIRE PROTECTION SYSTEM

LCO 3.1.2 Fire Water Supply System

LCO: The fire water supply system shall be OPERABLE. An OPERABLE fire water supply system consists of the following elements:

- The system shall maintain a water capacity of ≥ 135,000 gallons.
- The system shall have two OPERABLE fire pumps.

MODE Applicability: WASTE HANDLING and WASTE STORAGE

PROCESS AREA Applicability: CH BAY and UNDERGROUND (during WASTE transport using the waste hoist)

ACTIONS

Condition	Required ACTION		Completion Time
A. Fire Water capacity is < 135,000 gallons	A.1	Do not introduce any additional TRUPACT-IIs or HalfPACTs with WASTE into the CH BAY and do not open CLOSED TRUPACT-IIs or HalfPACTs with WASTE in the CH BAY.	IMMEDIATELY
	AND		
	A.2	Post a FIRE WATCH in the CH BAY	IMMEDIATELY
	AND		
	A.3	Initiate actions to restore water volume to the required level	IMMEDIATELY
	AND		
	A.4.1	Restore the water volume to the required level	8 HOURS
		OR	
	A.4.2	Stop all WASTE HANDLING OPERATIONS in the CH BAY	8 HOURS

3/4.1 FIRE PROTECTION SYSTEM

LCO 3.1.2 Fire Water Supply System (continued)

ACTIONS (continued)

Condition	Required ACTION		Completion Time
B. One Fire Pump is INOPERABLE	B.1.1	Stop all WASTE HANDLING OPERATIONS in the CH BAY	1 WEEK
		OR	
	B.1.2	Restore OPERABILITY of the affected Fire Pump	1 WEEK
C. Both Fire Pumps are INOPERABLE	C.1	Do not introduce any additional TRUPACT-IIs or HalfPACTs with WASTE into the CH BAY and do not open CLOSED TRUPACT-IIs or HalfPACTs with WASTE in the CH BAY.	IMMEDIATELY
	AND		
	C.2	Post a FIRE WATCH in the WHB and Support Building	IMMEDIATELY
	AND		
	C.3.1	Stop all WASTE HANDLING OPERATIONS in the CH BAY	8 HOURS
		OR	
	C.3.2	Restore OPERABILITY of at least one Fire Pump	8 HOURS

LCO 3.1.2 Fire Water Supply System (continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
4.1.2.1	VERIFY that there is > 135,000 gallons of water available to fight a fire within the Water Distribution System.	Each shift
4.1.2.2	VERIFY that the isolation valve is open.	Each shift
4.1.2.3	VERIFY that there is > 125 gallons of diesel fuel maintained in the diesel Fire Pump fuel tank.	Each shift
4.1.2.4	Perform an Automatic Start test on the Fire Pumps to assure each pump can automatically start at the proper pressure parameter.	WEEKLY
4.1.2.5	VERIFY that each Fire Pump is capable of pumping output of $\geq$1500 gpm at $\geq$105 psi (pounds per square inch) net discharge.	ANNUALLY

3/4.1 FIRE PROTECTION SYSTEM

LCO 3.1.3 Waste Handling Equipment Automatic/Manual Fire Suppression System

LCO: The automatic/manual fire suppression system on diesel powered waste handling equipment, selected for use, shall be OPERABLE. An OPERABLE automatic fire suppression system consists of the following elements:

- System status lights are functioning properly and no trouble lights are illuminated on the automatic fire suppression system control module.
- A charged fire suppressant system on the waste handling equipment selected for use.

An OPERABLE manual fire suppression system consists of the following element:

- A charged fire suppressant system on the waste handling equipment selected for use.

MODE Applicability: WASTE HANDLING

PROCESS AREA Applicability: UNDERGROUND (using the WASTE transporter or forklift)

ACTIONS

Condition	Required ACTION		Completion Time
A. Automatic Fire Suppression System INOPERABLE but the manual fire suppression capability is OPERABLE for the selected waste handling equipment	A.1	Post a FIRE WATCH.	IMMEDIATELY
	AND		
	A.2	Restore OPERABILITY of the automatic fire suppression system to continue WASTE HANDLING	48 HOURS
		OR	
	A.3	Replace WASTE HANDLING equipment having the INOPERABLE automatic fire suppression system with equipment having an OPERABLE automatic fire suppression system to continue WASTE HANDLING.	48 HOURS
		OR	
	A.4	Stop WASTE HANDLING in the UNDERGROUND using the equipment with INOPERABLE automatic fire suppression system.	48 HOURS

3/4.1 FIRE PROTECTION SYSTEM

LCO 3.1.3 Waste Handling Equipment Automatic/Manual Fire Suppression System

ACTIONS (continued)

B.	Both manual and automatic capability of the Automatic/Manual Fire Suppression System INOPERABLE for the selected waste handling equipment	B.1 **AND** B.2	Post a FIRE WATCH. Stop WASTE HANDLING OPERATIONS with the affected piece of equipment.	IMMEDIATELY 4 HOURS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
4.1.3.1	VERIFY, for the diesel powered waste handling equipment selected for use, that the automatic fire suppression system control module system status lights are functioning properly and that no trouble lights are illuminated on the selected waste handling equipment.	48 HOURS *
4.1.3.2	Visually VERIFY that the automatic/manual fire suppression system has not discharged.	12 HOURS*
4.1.3.3	VERIFY that the automatic/manual fire suppression system is charged.	Semi-annually
4.1.3.4	Perform a test of the automatic fire suppression system controls.	Semi-annually

* Frequency of surveillance applies only to equipment in use.

3/4.2 UNDERGROUND VENTILATION SYSTEM

LCO 3.2 Underground Ventilation System

LCO: The underground ventilation system shall be OPERABLE for WASTE HANDLING OPERATIONS in the UNDERGROUND. An OPERABLE underground ventilation system consists of the following elements:

- A minimum of 42,000 actual cubic feet per minute in the ACTIVE DISPOSAL ROOM.
- A minimum of 12,000 actual cubic feet per minute in the waste shaft station ventilation circuit as measured on the waste shaft side of regulator 74-B-308.

MODE Applicability: WASTE HANDLING

PROCESS AREA Applicability: UNDERGROUND

ACTIONS

Condition	Required ACTION		Completion Time
A VENTILATION CONFIGURATION changes or UNDERGROUND ventilation is INOPERABLE.	A.1	Place WASTE in a safe condition and stop WASTE HANDLING in the UNDERGROUND.	IMMEDIATELY
	AND		
	A.2	Restore UNDERGROUND ventilation system OPERABILITY or VERIFY the ACTIVE DISPOSAL ROOM and waste shaft ventilation circuit have the required flow.	Prior to WASTE HANDLING OPERATIONS in the UNDERGROUND

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
4.1.4.1	VERIFY a minimum of 42,000 actual cubic feet per minute in the ACTIVE DISPOSAL ROOM.	Daily or after VENTILATION CONFIGURATION changes
4.1.4.2	VERIFY a minimum of 12,000 actual cubic feet per minute in the waste shaft ventilation circuit as measured on the waste shaft side of regulator 74-B-308.	Daily or after VENTILATION CONFIGURATION changes

Section 5

ADMINISTRATIVE CONTROLS

5.0 ADMINISTRATIVE CONTROLS

5.1 Purpose

The purpose of the ACs is to state the provisions relating to organization and management, procedures, record keeping, review and assessment, reporting, and SMPs necessary to ensure safe operation of the WIPP facility, such that the TSRs are met.

Unless otherwise noted, these ACs are applicable to the facility at all times.

5.2 Management Responsibilities

5.2.1 Facility Manager

The Facility Manager (or designee) is responsible for the following:

a. Overall management of the facility and shall delegate in writing the succession of this responsibility during any absences.

b. Facilitation and control of physical changes in facility configuration.

c. Ensuring that all facility operations are performed under a qualified Facility Manager/Facility Shift Manager.

5.2.2 Facility Shift Manager

The Facility Shift Manager(s) or designee(s) is responsible for the following:

a. Overall facility operation and shall delegate in writing the succession of this responsibility during any absences.

b. Operation of the facility in accordance with approved TSRs.

c. Facilitation and control of physical changes in facility configuration, and coordination of the activities of work groups within the facility.

d. Ensuring that all facility operations are performed under a trained supervisor.

NOTE: This does not require the supervisor to be present at the work site. This means that the supervisor is trained to perform the tasks commensurate with management expectation for the associated facility operations.

e. Ensuring personnel performing surveillance, maintenance testing, or other activities that could affect SSCs as credited in the facility safety basis meet established training requirements for the activity/activities being performed.

The Facility Shift Manager(s) or designee has the authority to take emergency actions in accordance with Section 5.7.4.

5.3 Minimum Staffing

The minimum required operating staff to maintain the facility in a safe condition is specified below.

Staffing Requirements for WASTE HANDLING OPERATIONS on the SURFACE and UNDERGROUND, WASTE HANDLING MODE, WASTE STORAGE MODE, and STANDBY MODE in the applicable PROCESS AREA:

1. Facility Shift Manager (one)
2. Central Monitoring Room Operator (one)
3. Surface Roving Watch (one)

5.3.1 Staffing Requirements for WASTE HANDLING in the CH Bay

Staffing over and above those required in Section 5.3 are only necessary during actual WASTE HANDLING MODE . One CH Waste Handling Engineer is required on-site when WASTE HANDLING OPERATIONS are in progress.

1. Staffing Requirements for WASTE HANDLING MODE in the CH BAY

    a. Required personnel identified in Section 5.3

    b. Radiological Control Technician (one per TRUDOCK position in operation)

    c. Radiological Control Air Monitoring Technician Rover

    d. Waste Handling Technician to operate the crane (one per TRUDOCK position in operation)

    e. Waste Handling Technician to direct off-loading waste from the transportation package (one per TRUDOCK crane in operation)

During WASTE HANDLING MODE in the CH BAY involving movement of WASTE from the TRUDOCK to the designated STORAGE area or to the conveyance loading car or movement of the conveyance loading car onto the waste shaft conveyance with WASTE, there shall be at least two Waste Handling Technicians (one to operate the waste handling forklift and a spotter) and the Radiological Control Air Monitoring Technician Rover present.

5.3.2 Staffing Requirements for WASTE HANDLING OPERATIONS on the SURFACE

a. Required personnel identified in Section 5.3

b. Waste Handling Technicians (two - one to operate the forklift used to remove the TRUPACT-II or HalfPACT from the trailer in the parking area and a spotter)

5.3.3 Staffing Requirements for WASTE HANDLING MODE in the UNDERGROUND

a. Required personnel identified in Section 5.3

b. Radiological Control Technician (one per waste handling transporter/forklift during movement of WASTE)

c. Waste Handling Technician (two for each underground transporter/forklift during movement of WASTE). One must serve as the spotter for off-loading WASTE from the underground transporter and emplacing at the WASTE FACE.

d. Underground Facility Operations Engineer

e. Underground Roving Watch

f. Waste Hoist Operator (only during loading, transport, and offloading WASTE on the waste shaft conveyance)

g. Top Lander at the waste shaft (only during loading, transport, and offloading WASTE on the waste shaft conveyance)

h Bottom Lander at the waste shaft (only during loading, transport, and offloading WASTE on the waste shaft conveyance)

5.4 TECHNICAL SAFETY REQUIREMENTS

5.4.1 General

The TSR shall:

1. Be complied with except for reasonable action taken in an emergency as described in Section 5.7.4.

2. Be procedurally controlled to require that changes are:

   a. Prepared with a submittal package, including a description of the revision, justification for the change, and supporting analyses.

   b. Reviewed and approved by the Contractor.

   c. Approved by the DOE prior to incorporation of the TSR change

      NOTE: Changes to the TSR bases do not require DOE approval if they meet the conditions of Section 5.4.3.

5.4.2 Compliance

The Contractor is responsible for ensuring that the requirements of the WIPP CH TSR are met. Compliance shall be demonstrated by:

1. Operating within the LCOs, and the associated SRs during their applicability.
2. Operating within the ACTIONS of LCOs when required.
3. Performing all SRs as required.
4. Establishing, implementing, and maintaining the required ACs.

5. Tracking AC noncompliances.

5.4.3 TSR Bases Control

Changes to the TSR Bases may be made without prior DOE approval provided the changes do not involve any of the following:

a. A change in the TSR.

b. A change to the DSA that involves an Unreviewed Safety Question (USQ) as defined in Section 5.5.8.

c. A change to the way that OPERABILITY of the TSR could be met, applied, or interpreted.

5.4.4 Proposed Changes

Proposed changes that do not meet the conditions of Section 5.4.3 shall be reviewed and approved by the DOE prior to implementation. Changes to the bases that may be implemented without prior DOE approval will be provided to the DOE at least annually.

5.5 PROGRAMMATIC ADMINISTRATIVE CONTROLS

5.5.1 Initial Testing, In-Service Inspection and Test, Configuration Management and Maintenance Program

An initial testing, in-service inspection and test, configuration management, and maintenance program shall be established, implemented, and maintained to ensure SSCs supporting safe operation of the WIPP and DESIGN FEATUREs subject to degradation perform their intended functions. This shall ensure the DESIGN FEATUREs of equipment remain consistent with those assumed in the CH DSA.[1]

5.5.2 Document Control

A document control program and associated procedures shall be established, implemented, and maintained to control WIPP documents. The program shall establish minimum review and approval requirements, change control, and minimum record retention requirements for WIPP.

5.5.3 Quality Assurance Program

A quality assurance program and associated procedures shall be established, implemented, and maintained. The basic elements of the quality assurance program include work planning; training and personnel development; preparing, reviewing, approving, and verifying designs; qualifying suppliers; preparing, reviewing, approving, and issuing instructions, procedures, schedules, and procurement documents; purchasing; verifying supplier work; identifying and controlling hardware and software; manufacturing; managing and operating facilities; calibrating and controlling measuring and test equipment; conducting investigations and acquiring data; performing maintenance, repair, and improvements; performing assessments; and controlling records.

5.5.4 Training

A training program for the WIPP facility operation staff and technical support personnel shall be established and maintained to ensure that operators are trained to properly operate the waste handling equipment during normal operations and to properly respond to off-normal operations. The CMR operator(s) and waste handling personnel are trained in the proper response to a fire in the UNDERGROUND during WASTE HANDLING OPERATIONS.

5.5.5 Conduct of Operations

The Conduct of Operations program shall contain elements of organization and administration of facility operations to ensure that operations activities are controlled to be consistent with assumptions in the CH DSA.[1] Effective implementation and control of operating activities are primarily achieved through established written standards for operations, periodic monitoring and performance assessment, and holding personnel accountable for their performance.

The basic elements of the Conduct of Operations program include, as applicable, guidance for: operations organization and administration; shift routines and operating practices; control area activities; communications; control of on-shift training; control of equipment and system status; lockouts and tagouts; independent verification; log keeping; operations turnover; timely orders to operators; operations procedures; operator aid postings; and equipment and piping labeling. This program includes performance of preoperational checks to ensure that equipment performing WASTE HANDLING OPERATIONS operates as required for WASTE HANDLING OPERATIONS.

5.5.6 Emergency Response Program

An emergency response program and associated procedures shall be established, implemented, and maintained that provides preparedness, training, and operational response capabilities (including notification, evacuation, and direct responses to events) to minimize consequences to workers and the public from accidents involving WIPP operations. It will provide emergency response actions for events such as:

- Fires or flammable gas explosions in the WHB and UNDERGROUND
- Other events resulting in a breach of WASTE containers at WIPP

5.5.7 Radiation Protection Program

A radiation protection program and associated procedures shall be established, implemented, and maintained to ensure personnel radiation protection for all operations involving personnel radiation exposure.

The radiation protection program shall include considerations and general facility DESIGN FEATUREs employed to maintain radiation exposures as low as reasonably achievable; radiological control zoning and access control; radiation shielding; ventilation systems; differential pressure; radiation monitoring equipment, and effluent monitoring and sampling systems. The radiation protection program shall ensure consistency with the assumptions in Chapter 5 of the CH DSA.[1]

5.5.8 Unreviewed Safety Questions

A USQ program and associated procedures shall be established, implemented, and maintained that ensures the WIPP remains consistent with the CH DSA[1] and credited DESIGN FEATUREs.

5.5.9 Fire Protection Program

The WIPP fire protection program shall be established to, at a minimum, provide for periodic inspection and testing of fire suppression, detection and alarm equipment to meet the requirements of the National Fire Protection Association (NFPA). The program includes combustible loading control for structures or areas of the facility with the potential to impact CH WASTE at WIPP and ensures that combustible loading is maintained such that small fires will not propagate into larger fires with sufficient heat to cause a significant release from WASTE containers in close proximity to the fire. The fire protection program includes control of transient combustible loading in the WHB and TRUPACT Maintenance Facility. The combustible loading program will incorporate assumptions from the most current fire hazard analysis and the SPECIFIC ADMINISTRATIVE CONTROLs in Section 5.6 of these CH TSRs applicable to the WHB, and the DISPOSAL PATH and ACTIVE DISPOSAL ROOM in the UNDERGROUND.

5.5.10 Ground Control and Geotechnical Monitoring Program

A ground control and geotechnical monitoring program shall be established, implemented and maintained to initiate remedial action for unstable salt and to characterize, monitor, and trend salt behavior to minimize the likelihood of falling objects from the overhead and prevent a roof fall event in the UNDERGROUND. The program shall include periodic ground control inspections as stated in Section 5.6 of this CH TSR document.

5.5.11 Waste Hoist Structure and Structural Support Integrity Program

A waste hoist structure and structural integrity support program shall be established and shall determine the periodic inspections, tests, and/or maintenance activities and periodicity for those activities that are needed to maintain the integrity of the load bearing components associated with the waste hoist.

5.6 SPECIFIC ADMINISTRATIVE CONTROLS

5.6.1 Criticality Safety Program

a. ***AC Statement***: A Waste Characterization/Certification Program at each generator site ensures that only CH WASTE that meets the WIPP CH Waste Acceptance Criteria[3] is disposed of at WIPP, and that any exceptions are evaluated against all applicable baseline documents prior to their authorization for shipment. The following criticality safety requirements shall be met before WASTE is approved for disposal at WIPP:

- Fissile loading shall not exceed 200 Fissile Gram Equivalent (FGE), including two times the measurement error, per 55-, 85-, or 100-gallon drum containing up to 5 kg (kilograms) beryllium. If drums are used to OVERPACK WASTE that has been compacted, the WASTE must conform to one of the following conditions:[4, 5, 6]

  - The packing fraction of the WASTE contents shall not exceed 70%, or

  - The fissile loading for the overpacking drum shall not exceed 170 FGE, or

  - The internal and external height dimensions of the overpacking drum shall ensure a minimum ½-in. separation between the contents of the drums containing compacted WASTE and other WASTE containers when stacked. For example, drums that meet the internal and external height dimensions of British Nuclear Fuels Ltd. Drawing 53-9840, Revision 8,[7] ensure that the vertical separation

between the contents of drums containing compacted WASTE and other WASTE containers, when stacked, is at least ½ in. The use of steel spacers in the top and bottom of the overpacking drum is also an acceptable method of achieving design separation.

- Fissile loading shall not exceed 100 FGE, including two times the measurement error, per 55-, 85-, or 100-gallon drum containing beryllium at greater than 5 kg and up to a maximum of 100 kilograms of beryllium. The density for polyethylene shall not exceed 20 percent (0.184 g/cm^3) of its theoretical full density.[4]

- Fissile loading shall not exceed 325 FGE, including two times the measurement error, for non-compacted CH TRU WASTE DIRECT LOADED in a standard waste box (SWB) OR ten-drum overpack (TDOP), beryllium shall not exceed 18.14 kilograms, and beryllium must be FINES or SHAVINGS, and the density of polyethylene distributed in the SWB or TDOP shall not exceed 20 percent (0.184 g/cm^3) of its theoretical full density.[4, 5, 6]

  For compacted CH TRU WASTE DIRECT LOADED into a SWB or TDOP in which the density of polyethylene exceeds 20 percent (0.184 g/cm^3) of its full theoretical density, fissile loading shall not exceed 185 FGE including two times the measurement error, beryllium shall not exceed 18.14 kilograms, and beryllium must be FINES OR SHAVINGS.[4, 5, 6]

- Pipe overpacks (a 55-gallon drum containing a standard 6- or 12-inch pipe component, or a S100, S200, or S300 pipe component) are limited to no greater than 200 FGE, including two times the measurement error, and 5 kilograms beryllium.[4, 8]

- A drum OVERPACKED in TDOP or SWB requires that the FGE and beryllium mass be restricted to the limits of the DIRECT LOADED SWB or TDOP. A damaged or open SWB, OVERPACKED in a TDOP requires that the TDOP FGE and beryllium mass be restricted to the DIRECT LOADED TDOP limit.

Basis:

The purpose of this requirement is to protect assumptions for Nuclear Criticality Safety Evaluations that show criticality in transport containers is not credible. Violation of the stated limits is a violation of the TSRs by WIPP only if the generator site certification documentation included characterization data that was not in compliance with the stated limits, but the WASTE was accepted by WIPP.

b. ***AC Statement***: The WASTE handling, storage, and disposal configuration at WIPP is as follows:

- Drum arrays shall not exceed three drums high in the UNDERGROUND disposal area and two drums high in the CH BAY storage areas.[4, 5, 6]

- SWB arrays shall not exceed three SWBs high in the UNDERGROUND disposal area and two SWBs high in the CH BAY storage areas.[4, 5, 6]
- Combinations of drums, TDOPs, and SWBs shall be stacked in the UNDERGROUND such that the stack height is limited to the equivalent of three drums high.[4, 5, 6]
- TDOPs are positioned one high in either the CH BAY or UNDERGROUND disposal area.[4, 5, 6]
- WASTE drums shall be stacked only in the vertical position (longest dimension vertical).[4, 5, 6]
- SWBs shall be stacked only in the normal horizontal position (longest dimension horizontal).[4, 5, 6]
- TDOPs shall be positioned with the longest dimension vertical.[4, 5, 6]

Basis:

The purpose of this requirement is to ensure inadvertent criticality remains incredible at WIPP.

5.6.2 WASTE Characteristics Control

WASTE characteristics are ensured by a WASTE characterization/certification program at each generator site that ensures that only CH WASTE that meets the CH *Waste Acceptance Criteria*[3] is disposed of at WIPP and that any exceptions are evaluated against all applicable baseline documents prior to their authorization for shipment.

a. ***AC Statement***: The following are prohibited in WASTE approved for disposal at WIPP:

- Residual liquids in excess of 1% by volume of WASTE
- Pyrophoric radioactive materials in excess of 1% by weight of WASTE
- Any pyrophoric non-radioactive materials
- Explosives
- Compressed gases (pressurized containers)
- WASTE exhibiting the characteristic of ignitability, corrosivity, or reactivity (Environmental Protection Agency hazardous waste numbers of D001, D002, or D003)
- Hazardous wastes not occurring as co-contaminants with TRU WASTE (non-mixed hazardous waste)

Basis:

The purpose of this requirement is to prevent fires and explosions in WASTE containers by eliminating ignition sources in the WASTE containers. Inclusion of prohibited items in WASTE handled at WIPP is a violation of the TSRs by WIPP only if the generator site certification documentation included characterization data that was not in compliance with the stated prohibited items, but the WASTE was accepted by WIPP.

b. ***AC Statement***: WASTE containers accepted for disposal at WIPP as CH WASTE do not exceed 200 mrem/hr on contact.

Basis:

The purpose of this requirement is to ensure that WASTE accepted for disposal at WIPP meets the requirement for CH WASTE. The surface dose rate may not be known until WASTE is removed from the transportation container. WASTE handled at WIPP that exceeds 200 mrem/hr on contact is a TSR violation only if the generator site documentation identifies this condition as not being met and the WASTE is accepted by WIPP.

c. ***AC Statement***: All WASTE containers are vented.

Basis:

The purpose of this requirement is to prevent pressure buildup in the WASTE containers.

d. ***AC Statement***: The Pu-239 Equivalent Curie (PE-Ci) limits shall be as follows:

- 80 PE-Ci per DIRECT LOADED 55-, 85-, or 100-gallon drum
- 560 PE-Ci per DIRECT LOADED SWB
- 560 PE-Ci per DIRECT LOADED TDOP
- 1800 PE-Ci per WASTE container of solidified/vitrified WASTE
- 1100 PE-Ci per undamaged 55- gallon drum OVERPACKED in a SWB, 100- gallon drum, 85- gallon drum or TDOP; 85 or 100 gallon drum or SWB OVERPACKED in a TDOP.
- 1200 PE-Ci per OVERPACKED assembly of undamaged containers (55- gallon drum OVERPACKED in a SWB, 100- gallon drum, 85- gallon drum or TDOP; 85 or 100 gallon drum or SWB OVERPACKED in a TDOP). If greater than 1200 PE-Ci, a USQ shall be performed and, if required, DOE approval shall be obtained for safe processing of the WASTE.
- 1800 PE-Ci per Pipe Overpack Containers including either 6-in. or 12-in. pipe components, or S100, S200, or S300 pipe components

Basis:

The purpose of this requirement is to protect basic inventory assumptions. Violation of the stated limits is a violation of the TSRs by WIPP only if the generator site certification documentation included characterization data that was not in compliance with the stated limits, but the WASTE was accepted by WIPP.

e. ***AC Statement***: Acceptable WASTE containers shall be limited to metal 55-gallon drums, 85-gallon drums, 100-gallon drums, TDOPs, SWBs, and pipe overpack containers (a pipe OVERPACK refers to a 55-gallon drum containing either a standard 6-in. or 12-in. pipe component, or S100, S200, or S300 pipe component) that meet Department of Transportation (DOT) Type 7A requirements or equivalent.

Basis:

Protects inventory assumptions as robust WASTE containers minimize the release of radioactive material.

5.6.3 Combustible Loading Control Program - Waste Handling Building

a. ***AC Statement***: When WASTE is outside of CLOSED TRUPACT-IIs or HalfPACTs, only electrically powered equipment shall be allowed in the CH BAY.

Basis:

The purpose of this requirement is to reduce the likelihood and severity of fires within the WHB that have the potential to impact the WASTE. Using electric vehicles rather than diesel vehicles eliminates a large fire hazard, as electric vehicles do not contain the fuel necessary to produce as large or intense a fire. The TRUPACT-IIs and HalfPACTs are designed to be capable of withstanding a diesel fire; therefore, as long as the WASTE is protected by the TRUPACT-IIs and HalfPACTs there is no need to limit the type of vehicles allowed in the area.

b. ***AC Statement***: Flammable gas cylinders are prohibited in the CH BAY unless all WASTE containers are inside CLOSED TRUPACT-IIs or HalfPACTs. This limitation does not apply to packages covered by DOT Exemption DOT-E-7607.

Basis:

The purpose of this requirement is to prevent explosions due to release of flammable gas in the WHB while WASTE containers are not protected by transportation containers. The TRUPACT-IIs or HalfPACTs can sustain the impact from a flammable gas explosion with little to no damage. Therefore, if the WASTE is stored within these containers, there will be a minimal release of material which significantly reduces the consequences from an event of this type.

c. ***AC Statement***: No compressed flammable gas cylinders shall be stored in or along the external walls of the WHB or TRUPACT Maintenance Facility, or in the area between the WHB and the Support Building.

Basis:

The purpose of this requirement is to prevent flammable gas explosions originating from other locations at the WIPP facility. Prohibiting the storage of flammable gas cylinders in areas near the WHB limits the potential for external explosions to impact the WASTE.

5.6.4 Waste Handling Restrictions

a. ***AC Statement***: Once out of the TRUPACT-IIs or HalfPACTs the WASTE containers are stored on facility pallets and are transported on facility pallets to and in the UNDERGROUND until disposed of in the WASTE array.
Basis:

The purpose of this requirement is to ensure that WASTE is transported via a mechanism that can adequately support the WASTE and to prevent a forklift from inadvertently placing WASTE into the waste shaft. This control protects the conditions that were analyzed in the DSA.[1] *If it becomes necessary to OVERPACK WASTE containers or adjust drum assemblies to remove or add dunnage at WIPP, the WASTE container(s) may be removed from a facility pallet, but will be returned to a facility pallet for subsequent storage in the CH Bay and transport to and in the UNDERGROUND.*

b. ***AC Statement***: No non-waste handling vehicles are allowed in the ACTIVE DISPOSAL ROOM during WASTE handling.

Basis:

The purpose of this requirement is to reduce the potential to breach WASTE containers from a vehicle crash into the WASTE array during WASTE HANDLING OPERATIONS.

c. ***AC Statement:*** A spotter is required when diesel powered vehicles are operating within 75 ft of the WASTE FACE.

Basis:

The purpose of this requirement is to ensure that the spotter and vehicle driver are in constant communication to control vehicle and WASTE movement in such a manner as to prevent vehicle collision with the disposal array or collisions between vehicles during WASTE HANDLING or other non-waste handling vehicle activities near the WASTE FACE. Preventing collisions prevents breach of WASTE containers due to impact or fires that may result from collisions.

d. ***AC Statement***: No more than two transporters loaded with WASTE shall be in transit in the UNDERGROUND at any one time.

Basis:

The purpose of this requirement is to protect the initial condition established during the Hazard Evaluation which limits the amount of material available for release during accident conditions. Protecting this limit ensures that the facility will remain within the operating envelope developed in the DSA.[1]

e. ***AC Statement***: WASTE shall be transported to the UNDERGROUND by way of the waste shaft only. No other shaft to the underground may be used for transportation of WASTE.

Basis:

The purpose of this requirement is to ensure that the WASTE is transported by the appropriate means and eliminates the potential to encounter hazards other than the conditions that were analyzed in the DSA.[1]

f. ***AC Statement***: In the UNDERGROUND, no WASTE shall be moved to a location outside the designated DISPOSAL PATH.

Basis:

The purpose of this requirement is to restrict the WASTE to locations for which all of the hazards have been adequately analyzed and the risk of involvement in an accident is controlled.

g. ***AC Statement***: TRUPACT-II and HalfPACT containers shall not be opened in the SURFACE (i.e., parking area), rather they shall be brought into the CH BAY before opening.

The inventory in the CH BAY is:

- Seven facility pallets (typically stored in the northeast corner)
- One facility pallet in the shielded storage room
- Two facility pallets, one at each TRUDOCK

A facility pallet holds four seven-packs of 55-gallon drums, four four-packs of 85-gallon drums, four three-packs of 100-gallon drums, four SWBs, or two TDOPS, or a combination of containers. WASTE drums, SWBs, or TDOPs are not opened at WIPP.

Basis:

The purpose of this requirement is to protect the inventory assumptions established during the Hazard Evaluation which limit the amount of material available for release during accident conditions. Protecting this limit ensures that the facility will remain within the operating envelope developed in the DSA.[1]

h. ***AC Statement***: WASTE shall be stored only in designated areas within the WHB which includes the northeast portion of the CH BAY, the shielded storage room, and at the TRUDOCKs.

Basis:

This control reduces the likelihood that WASTE containers will be breached if a vehicle accidentally crashes into the WHB. This prohibits storage along the south wall except for placement in the shielded storage room.

i. ***AC Statement***: Personnel access in E-300 shall be restricted from the exit of the ACTIVE DISPOSAL ROOM to the UNDERGROUND ventilation exhaust shaft during WASTE HANDLING OPERATIONS.

Basis:

The purpose of this requirement is to reduce the potential consequences to workers in the UNDERGROUND in the event a release of material occurs.

5.6.5 Combustible Loading Control Program - DISPOSAL PATH

a. ***AC Statement***: The following requirements for combustible loading control in the DISPOSAL PATH shall be met:

- Only diesel or electrically powered vehicles are used in the UNDERGROUND
- When WASTE is in transit, vehicles not performing WASTE HANDLING OPERATIONS shall be moved to a cross-cut and be secured until the WASTE transporter has passed and is greater than 75 ft away. Vehicles that may have become disabled (excluding the lube truck) may be in the DISPOSAL PATH but must be secured along the wall of the DISPOSAL PATH.
- No combustibles or flammable compressed gas cylinders shall be stored in the DISPOSAL PATH. (Note: a disabled vehicle is not considered to be in storage.)
- No flammable gas cylinders shall be used in the DISPOSAL PATH during WASTE HANDLING OPERATIONS.
- Two transporters loaded with WASTE in the UNDERGROUND shall maintain greater than 75 ft separation between them. This separation distance does not apply if a transporter becomes disabled while loaded with WASTE and it is necessary to either move another loaded transporter past or move WASTE from a disabled transporter to another transporter. If this situation occurs, a FIRE WATCH is required.
- The lube truck shall not be allowed in the DISPOSAL PATH while WASTE is in transit from the waste shaft station to the ACTIVE DISPOSAL ROOM.
- No flammable gas or flammable gas cylinders stored between AIS and South 1000 in West 30 or on the North ventilation side within 100 ft. of bulkhead 303.
- No construction work involving flammable gas cylinders at bulkhead 309 during WASTE HANDLING OPERATIONS.
- No construction work involving flammable gas between the disposal panel supply overcast and the construction bulkhead to the south in E-300 during WASTE HANDLING OPERATIONS. When panel 4 is added to the disposal path no construction work involving flammable gas/liquid or flammable compressed gas cylinders is allowed between the overcast at E-140/S-3310 and the construction bulkhead to the west of this overcast in S-3310 during CH WASTE HANDLING OPERATIONS.

Basis:

The purpose of these requirements is to limit fuel to reduce the frequency and severity of fires and flammable gas explosions in the DISPOSAL PATH or that have the potential to affect the DISPOSAL PATH where WASTE may be affected. In addition, these requirements reduce the potential for a collision between equipment performing WASTE HANDLING OPERATIONS and equipment not performing WASTE HANDLING OPERATIONS during WASTE HANDLING OPERATIONS.

5.6.6 Combustible Loading Control Program - ACTIVE DISPOSAL ROOM

a. ***AC Statement***: The following requirements for combustible loading control in the ACTIVE DISPOSAL ROOM shall be met:

- No non-waste handling vehicles are allowed in the ACTIVE DISPOSAL ROOM during WASTE HANDLING.
- No non-waste handling equipment is allowed within 75 ft the WASTE FACE without a FIRE WATCH.
- No hot work shall be performed within 75 ft of WASTE without a FIRE WATCH being posted.
- No flammable gas cylinders shall be used in the ACTIVE DISPOSAL ROOM without a FIRE WATCH being posted.
- No use of flammable gas or flammable compressed gas cylinders in the ACTIVE DISPOSAL ROOM DURING WASTE HANDLING.
- Flammable gas and flammable gas cylinders shall not be stored in the ACTIVE DISPOSAL ROOM.
- The lube truck shall not be allowed in the ACTIVE DISPOSAL ROOM.

Basis:

The purpose of these requirements is to limit fuel to reduce the frequency and severity of fires that can impact WASTE containers being emplaced or in the WASTE array. In addition, these requirements reduce the potential for a vehicle to impact the WASTE and cause a release of material.

5.6.7 Ground Control Program

a. ***AC Statement***: There shall be weekly ground control inspections in the UNDERGROUND WASTE handling areas. The completion of inspections will be documented.

Basis:

The purpose of this requirement is to minimize the likelihood of falling objects from the overhead and prevent a roof fall event in the UNDERGROUND WASTE handling areas. This program is designed to detect conditions that indicate instability and initiate corrective action.

5.6.8 Waste Hoist Brake Performance

a. ***AC Statement***: Procedures shall be established, implemented, and maintained to ensure that the preoperational tests of the Waste Hoist Brake System shall be performed on each shift prior to transporting WASTE.

Basis:

The purpose of this requirement is to prevent the uncontrolled movement of the waste shaft conveyance upon loss of power or loss of hydraulic pressure.

5.6.9 Nonflammable Compressed Gas Cylinder Control

a. ***AC Statement***: No more than four compressed gas cylinders (no larger than DOT Type 3AA, style K) shall be in the CH bay when WASTE is outside of a CLOSED TRUPACT-II or HalfPACT. This limit does not apply to hand held fire extinguishers.

b. ***AC Statement***: No compressed gas cylinders (excluding hand held fire extinguishers) shall be stored at the bottom of the waste shaft, in the DISPOSAL PATH, or in the ACTIVE DISPOSAL ROOM.

Basis:

The purpose of this requirement is to minimize the potential for improper handling or storage of compressed gas cylinders which could result in damage to WASTE containers and a subsequent release.

5.6.10 Qualified Operators

a. ***AC Statement***: Only operators who are trained in the operational evolutions and qualified on the applicable equipment are authorized to operate plant equipment for WASTE HANDLING OPERATIONS.

Basis:

The purpose of this requirement is to ensure that operators are qualified to properly operate the WASTE handling equipment during normal operations and to properly respond to off-normal operations.

b. ***AC Statement***. Only operators who are trained in the appropriate response to fires in the UNDERGROUND shall be authorized to man the CMR or to operate plant equipment for WASTE HANDLING OPERATIONS.

Basis:

The purpose of this requirement is to ensure that the CMR operator(s) and operations personnel in the UNDERGROUND performing WASTE HANDLING OPERATIONS communicate and take the appropriate actions in the event of a fire in the UNDERGROUND such that the CMR operator(s) block the automatic shift to filtration of underground ventilation until personnel are out of danger. This requirement also ensures that operations personnel in the UNDERGROUND take the necessary immediate actions to notify the CMR and proceed to a safe location.

5.6.11 Toplander Control

a. ***AC Statement***: The toplander shall approve entry of loads onto the waste shaft conveyance through control of the gate at the waste shaft collar.

Basis:

The purpose of the toplander function is to control access to the waste shaft by making sure that the conveyance is in place prior to opening the gate in the fence at the top of the waste shaft and to prevent any load from being dropped down the shaft. There are no loads at WIPP that exceed the capacity of the waste hoist.

5.7 General Requirements

5.7.1 Occurrence Reporting

A program shall be established, implemented, and maintained for reporting of operational occurrences. Written reports and oral notifications shall be submitted to DOE in accordance with DOE regulations regarding reporting requirements. These reports and notifications shall be prepared in accordance with approved procedures and shall be reviewed and approved by management prior to submittal to DOE.

5.7.2 TSR Violations

Violations of a TSR occur as a result of the following three circumstances. (Note that there are no SLs or LCSs associated with the WIPP facility.)

1. Failure to complete ACTIONS within the required completion time. Entrance into these ACTIONS is made through the following pathways:

   - Exceeding an LCO.
   - Failing to successfully meet an SR.

2. Failure to perform a surveillance within the required FREQUENCY.

3. Failure to comply with an AC.

Failure to comply with the SACs in Section 5.5 constitutes a TSR violation. Failure to comply with a PAC is a TSR violation when either the AC is directly violated, or the intent of a referenced program is not fulfilled. To qualify as a TSR violation for PACs, the failure to meet the intent of the referenced program would need to be significant enough to render the DSA SMP summary description invalid.

A grace period of 24 hours is provided to perform a missed surveillance, thereby avoiding the need for facility personnel to take immediate, possibly unnecessary corrective action. Entering the grace period remains a TSR violation even though an immediate corrective action may not be required.

5.7.3 Response to TSR Violations

The following ACTIONS are required for response to an LCO violation:

a. Place the affected PROCESS AREA(s) in a safe condition by entering LCO 3.0.3.

b. Notify the DOE of the violation in accordance with the occurrence reporting program.

c. Prepare an Occurrence Report.

The following ACTIONS are required for response to an SR Violation (when an SR has not been performed within the required FREQUENCY):

a. Enter SR 4.0.3, and perform the SR within 24 hours or up to the limit of the specified FREQUENCY, whichever is less, prior to entering the required ACTION(s) to permit completion of the SR and thus allow recovery in accordance with LCO 3.0.2. The delay period commences at the time it is determined that a surveillance has not been performed.

   i. If the SR is successfully met, exit SR 4.0.3 and continue operation in a compliant condition.

      NOTE: Steps (b) and (c) of Section 5.7.3 must still be completed.

   ii. If the SR is not successfully met, enter the ACTIONS of the applicable LCO.

      NOTE: Steps (b) and (c) of Section 5.7.3 must still be completed.

b. Notify DOE of the violation in accordance with the occurrence reporting program.

c. Prepare an Occurrence Report.

The following ACTIONS are required for response to an AC Violation:

a. Notify the DOE of the violation in accordance with the occurrence reporting program.

b. Prepare an Occurrence Report.

c. Prepare a Corrective Action Plan describing the steps leading to compliance with the AC.

d. Perform and document a technical evaluation, if appropriate, of the AC violation to determine if any damage occurred.

5.7.4 Conditions Outside TSR

Emergency actions that depart from an approved TSR may be taken when no actions consistent with the TSR 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 in the TSR. This authority is delegated to the Facility Shift Manager (or designee).

In an emergency, if a situation develops that is not addressed by the TSR, the Facility Shift Manager (or designee) is expected to use his/her training and expertise to take actions to correct or mitigate the situation. Also, the Facility Shift Manager (or designee) may take actions that depart from a requirement in the TSRs provided that (1) an emergency situation exists; (2) these actions are needed IMMEDIATELY to protect the workers, public, and environment from imminent and significant harm; and (3) no action consistent with the TSR can provide adequate or equivalent protection. If emergency action is taken, both a verbal notification shall be made to the DOE, and a written report shall be made to the DOE as soon as practical. If, during normal operations, an off normal condition occurs that is not addressed by the TSRs, the Facility Shift Manager (or designee) shall place the facility in a safe

condition. With the facility in a safe condition, a Response Plan shall be developed by the contractor to address any additional actions to be taken and approved by the DOE.

5.8 Reviews and Assessments

5.8.1 General

This section describes the methods established to conduct independent reviews and audits of all activities associated with maintaining compliance with the TSR. These methods may include creating an organizational unit or a standing or ad hoc committee, or assigning individuals capable of conducting these reviews. When an individual performs a review function, a cross-disciplinary review determination may be necessary. Individual reviewers shall not review their own work or work over which they have direct responsibility. Management shall specify the functions, organizational arrangement, responsibilities, appropriate qualifications of reviewers, and reporting requirements of each functional element or unit that contributes to these processes.

The goal of the review and assessment program is to provide a cohesive program to provide senior level management with an assessment of facility operation and to recommend actions to improve nuclear safety and facility reliability. The program should include an assessment of the effectiveness of reviews conducted by facility staff. The goal of the independent oversight is to provide an outside look at day-to-day operations. The goal of the independent program is to VERIFY compliance with established contractor policies and programs.

5.8.2 Facility Reviews

The Facility Manager (or designee) shall review activities affecting the safe operation of WIPP to ensure that day-to-day activities are conducted in a safe manner. These reviews shall include, as a minimum, the following elements:

a. USQ Determinations
b. Proposed tests and experiments
c. Procedures and programs (required by the TSR)
d. Facility changes and modifications
e. TSR changes
f. Facility operation, maintenance, and testing
g. DOE and industry issues of safety significance
h. Other safety related issues

Additional reviews may be performed by individual reviewers or by a review committee. If individual reviews are used, reviewers shall not perform the above required review of their own work or work for which they have direct responsibility. Reviewers shall possess sufficient education, experience, expertise, and safety analysis and technical training in the review subject area. When performing reviews, a cross-disciplinary determination is necessary. If a cross-disciplinary review is deemed necessary, personnel of the appropriate discipline shall perform such reviews.

5.8.3 Independent Oversight

Reviews shall be conducted by a group independent of the facility functional organization being reviewed. This program should include a review of the following elements:

a. USQ Determinations
b. Proposed changes to the TSR
c. All violations of codes, DOE Orders, and procedures that have a safety and health significance
d. Occurrence Reports
e. Staff performance
f. Significant unplanned radiological or hazardous material releases
g. Unanticipated deficiencies of SSCs that could affect nuclear safety
h. Significant operating abnormalities

5.8.4 Self-Assessments

Periodic management self-assessments shall be performed in accordance with the Quality Assurance Program to VERIFY effective implementation.

5.9 Staff Qualifications and Training

5.9.1 Qualification

A program shall be established to ensure that identified facility staff meet established qualification requirements for their positions.

5.9.2 Training

An initial training and retraining program for the identified facility staff shall be established and maintained.

5.10 Record Retention

The following records shall be retained for the period specified by the Records Inventory and Disposition Schedule in accordance with the quality assurance program:

a. Records and logs of facility operation.

b. Records and logs of principal maintenance activities, inspections, repairs, and replacements of principal equipment items related to nuclear safety.

c. All reportable events/occurrences.

d. Records of surveillance activities, inspections, and calibrations required by TSRs.

e. Records of changes made to procedures.

f. Records and drawing changes reflecting facility design modifications made to systems and equipment described in the DSA.[1]

g. Records of radiation exposure for all individuals entering radiologically controlled areas.

h. Records of training and qualification for current members of the facility operations staff.

i. Records of USQs performed for changes made to procedures or equipment.

5.11 OPERABILITY Principles

General principles of OPERABILITY are as follows:

a. A system is considered OPERABLE as long as there is assurance that it is capable of performing its specified safety function(s).

b. A system can perform its specified safety function(s) only when all of its necessary support systems are capable of performing their related support functions.

c. Ensuring the capability of a system to perform a safety function is an ongoing and continuous process.

d. When a system designed to perform a certain safety function is not capable of performing that safety function, a loss of function condition exists. Applicable PROCESS AREA operation shall be controlled through specific ACTIONS and completion times detailed in the LCO.

e. When a system is determined to be incapable of performing its intended safety function(s), the declaration of INOPERABILITY shall be performed IMMEDIATELY.

f. Any exception to an immediate determination of INOPERABILITY shall be justified.

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Section 6

DESIGN FEATURES

6.0 DESIGN FEATURES

DESIGN FEATUREs are normally passive characteristics of the facility not subject to change by operations personnel. This section is needed so that any change in these design characteristics that could affect the safe operation of the facility will be done consciously, analyzed for safety implications, and approved at the appropriate level prior to making the modification.

The areas of the DESIGN FEATUREs credited in the safety analysis are passive components, configuration and/or physical arrangement. The feature and/or function being controlled is the actual design or function of the SSCs. As such, the DESIGN FEATUREs are controlled to the existing drawings, specifications, code of record, etc. The DESIGN FEATURE or function is being controlled to ensure that if the SSC is modified or replaced that the modification or new equipment has essentially the same feature, form, fit and function as the original equipment. Typically, the material, construction or the actual physical dimensions of the item are controlled as a DESIGN FEATURE. As such, the ACs of the: Configuration Management; Quality Assurance; Initial Testing, In Service Surveillance and Maintenance; and USQ Programs apply to these DESIGN FEATUREs.

The following DESIGN FEATUREs are credited in the DSA[1] as performing a safety function:

- **PPA is paved or graveled and surrounded by a gravel road**.

  The gravel and pavement surfaces maintain a physical separation greater than 200 ft between the WHB and the indigenous low profile vegetation surrounding the site, which minimizes the likelihood of a wildfire spreading to the WHB.

- **Underground bulkheads, overcasts, and airlocks are of noncombustible materials.**

  The bulkheads, overcasts, and airlocks provide separation between the construction ventilation circuit and the disposal ventilation circuit and waste shaft station and minimize the effects to WASTE from fires outside the DISPOSAL PATH.

- **TRUDOCK cranes and waste hoist**.

  The TRUDOCK cranes and the waste hoist are designed to hold their load during the Design Basis Earthquake (DBE) or loss of power.

- **Waste Handling Building**

  The WHB is designed to withstand a roof loading of 27 lb/sq ft, with a 100-year return frequency. This protects the WASTE inside from design basis snow and ice loading.

  The building is constructed primarily of metal, is grounded and has a lightning protection system. This requirement reduces the potential for direct lightning strikes to WASTE containers in the WHB.

  The WHB meets Type II noncombustible construction, which reduces the frequency and intensity of fires that could impact WASTE containers.

The WHB is designed to withstand a tornado with (1) a 183-mph wind speed with a 1,000,000-year return frequency, (2) straight winds with a wind speed of 110 mph with a 1,000-year return frequency, and (3) a seismic event that generates a free-field horizontal and vertical ground acceleration of 0.1g, based on a 1,000-year recurrence period. The qualification of the WHB for the wind or tornado event does not include qualification for wind or tornado driven missiles.

The main lateral force resisting members of the Support Building and the TRUPACT Maintenance Facility are designed to withstand the Design Basis Tornado and DBE to protect the WHB from structural failure.

- **Waste Shaft Conveyance**

The waste shaft conveyance is designed such that the height, width, and length of the materials deck can hold only one facility pallet containing WASTE. The chairs on the material deck of the waste shaft conveyance hold only one loaded facility pallet. The material deck is located below the mandeck such that WASTE is protected from falling objects and tornado missiles. The waste shaft conveyance is designed such that a facility pallet can only be loaded using the conveyance loading car.

- **Conveyance Loading Car**

The conveyance loading car platform is equipped with two pintles spaced to match corresponding openings in the bottom of the facility pallet, to prevent the pallet from sliding off the conveyance loading car. The conveyance loading car has a platform that raises and lowers to set a loaded facility pallet on the waste shaft conveyance materials deck chairs. The conveyance loading car has a low center of gravity and low horsepower drive motors. The rear wheels are not powered. The car will "high center" if the front wheels are driven into the waste shaft without the conveyance present. Once the front wheels drop into the shaft there is no more motive force to propel the car further. This design will prevent WASTE from inadvertently falling down the waste shaft.

- **Waste Hoist Brakes**

The waste hoist brake system must be energized to release both independent sets of brakes. During loss of power, the brakes fail safe to the engaged position. This design prevents the uncontrolled movement of the waste shaft conveyance upon loss of power or loss of hydraulic pressure.

- **Waste Hoist Structure and Structural Support**

The waste hoist structure and structural support including the waste hoist head frame, waste shaft conveyance, counter weight, ropes, waste hoist drum, and waste hoist tower are designed to prevent an uncontrolled drop of a loaded WASTE conveyance down the waste shaft.

- **Waste Hoist Head Frame**

The waste hoist head frame is sized such that a facility pallet can only be loaded onto the waste shaft conveyance in one direction and can only be loaded using the conveyance loading car. A facility pallet on a forklift will not fit past the waste hoist head frame.

- **Fence around Waste Shaft Collar**

  The fence around the waste shaft collar defines the restricted area surrounding the waste shaft and prevents uncontrolled access to the shaft.

- **Facility Pallet Design**

  The facility pallet is wider than the WASTE containers to prevent bulkhead doors from impacting WASTE containers. The facility pallet is designed to hold no more than four drum assemblies, four SWBs or two TDOPs, or a combination of containers. The facility pallet is designed to rest on chairs on the waste shaft conveyance materials deck. The facility pallet is designed to mate with pintles on the conveyance loading car to prevent the pallet from sliding off the conveyance loading car.

Section 7

References

7.0 REFERENCES

1.0 DOE/WIPP-95-2065, Revision 9, *WIPP Contact Handled (CH) Transuranic Waste Documented Safety Analysis*, 2005.

2.0 Title 10 Code of Federal Regulations Part 830, Subpart B, Safety Basis Requirements.

3.0 DOE/WIPP-02-3122, *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, November 2004.

4.0 CS-2003-001, Revision 1, *Waste Isolation Pilot Plant Nuclear Criticality Safety Evaluation for Contact Handled Transuranic Waste Storage*, August 2003.

5.0 SAIC-1171-001, Revision 1, *Nuclear Criticality Safety Evaluation for Storage of Machine Compacted Transuranic Waste at the Waste Isolation Pilot Plant*, February 2005, and Addendum 1, June 2005.

6.0 SAIC-1171-002, Revision 2, *Two Container Model Calculations for Non-Compacted Waste Containing <1wt% Beryllium*, February 2005

7.0 BNFL 53-9840, General Arrangement and Details 100-Gallon Puck Drum, Revision 8, from USQ Safety Evaluation 04-034.

8.0 USQ Safety Evaluation 04-013, *Addition of S300 Pipe Overpack to Waste Forms to be Disposed of at WIPP*

Appendix A

Bases

APPENDIX A - BASES

B3.0 LIMITING CONDITIONS FOR OPERATION

GENERAL

These generic LCOs establish the general requirements applicable to all LCOs in this document. These requirements are based on 10 CFR Part 830, Subpart B,[1] Safety Basis Requirements, and guidance of DOE G 423.1-1,[2] *Implementation Guide for Use in Developing Technical Safety Requirement*.

LCO 3.0.1

LCO 3.0.1 establishes the MODE applicability statement within each LCO as the requirement for conformance to the LCO for safe operation of the facility or PROCESS AREA. The ACTIONS establish the remedial measures that must be taken within specified completion times when the requirements of an LCO are not met as required by LCO 3.0.2.

LCO 3.0.2 establishes the exception for requiring each LCO to be met.

LCO 3.0.2

LCO 3.0.2 establishes that, on discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The completion time of each ACTION is applicable from the time that a condition is entered. The ACTIONS establish those remedial measures that shall be taken within specified completion times when the requirements of an LCO are not met.

This LCO establishes that:

a. Completion of the ACTIONS within the specified completion times constitutes compliance with an LCO.

b. Completion of the ACTIONS is not required when an LCO is met within the specified completion time, unless otherwise specified.

There are two basic types of ACTIONS. The first type of ACTION specifies a time limit in which the LCO shall be met. This time limit is the completion time to restore an INOPERABLE system or component to OPERABLE status or to restore variables to within specified limits. If this type of ACTION is not completed within the specified completion time, a shutdown may be required to place the applicable PROCESS AREA in a MODE or condition in which the LCO is not applicable. (Whether stated as an ACTION or not, restoration of INOPERABLE equipment or a condition back to within limits is an action that may always be considered on entering ACTIONS.)

The second type of ACTION specifies the remedial measures that permit continued operation of the FACILITY not further restricted by the completion time. In this case, conformance to the ACTIONS provides an acceptable level of safety for continued operation.

Completion of ACTIONS is not required when an LCO is met or is no longer applicable within the associated completion times, unless otherwise stated in the individual LCO.

LCO 3.0.2 (continued) The nature of some ACTIONS for some conditions necessitates that, once the condition is entered, ACTIONS shall be completed even though the associated conditions are resolved. The individual LCO's ACTIONS specify where this is the case.

The completion times of the ACTIONS are also applicable when a system or component is intentionally removed from service. The reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of surveillances, preventive maintenance, or corrective maintenance, or investigation of operational problems. ACTIONS for these reasons shall be performed in a manner that does not compromise safety. It is not intended that ACTIONS be intentionally entered for operational convenience. This requirement is to limit routine voluntary removal of redundant equipment from service in lieu of other alternatives that would not result in redundant equipment being INOPERABLE. This limits the time both subsystems of a safety function are INOPERABLE and limits the time other conditions exist that result in LCO 3.0.3 being entered. Individual LCOs may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In this case, the completion times of the ACTIONS are applicable when this time limit expires, if the SR has not been completed.

When a change in MODE or other specified condition is required to comply with ACTIONS, the FACILITY may enter a MODE or other specified condition in which a new LCO becomes applicable. In this case, the completion times of the associated ACTIONS would apply from the point in time that the new LCO becomes applicable, and the condition(s) is entered.

LCO 3.0.3 LCO 3.0.3 establishes the ACTIONS that shall be implemented when an LCO is not met:

a. An associated ACTION and completion time are not met and no other condition applies.

b. The facility condition is not specifically addressed by the associated ACTIONS. This means that no combination of conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the facility. Sometimes, possible combinations of conditions are such that entering LCO 3.0.3 is warranted; in such cases, the ACTIONS specifically state a condition corresponding to such combinations and also that LCO 3.0.3 must be entered IMMEDIATELY.

This LCO delineates the time limits for placing the applicable PROCESS AREA in a safe condition or other specified condition when operation cannot be maintained within the limits for safe operation, as defined by the LCO and its ACTIONS. It is not intended to be used as an operational convenience that permits routine voluntary removal of redundant systems or components from service in lieu of other alternatives that would not result in redundant systems or components being INOPERABLE.

LCO 3.0.3 (continued) Placing a PROCESS AREA in a safe and stable MODE or condition required in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:

1. The LCO is now met.

2. A condition exists for which the ACTIONS have now been performed.

3. ACTIONS exist that do not have expired completion times. These completion times are applicable from the point in time that the condition was initially entered and not from the time LCO 3.0.3 is exited.

The time limits of LCO 3.0.3 dictate that activities shall be initiated IMMEDIATELY to place the applicable PROCESS AREA in MODE or other specified condition in which the LCO is not applicable or in a safe condition if the LCO is applicable in all MODES. However, the applicable PROCESS AREA shall be in a safe condition within 6 hours. The time limits specified to reach lower MODES of operation or a safe condition permit the shutdown to proceed in a controlled and orderly manner that is well within the capabilities of the facility, assuming that only the minimum required equipment is OPERABLE. This reduces the potential for a facility upset that could challenge safety systems under conditions to which this LCO applies.

With the facility in a safe condition the current safety and operational situations must be reassessed and a plan must be developed, known as a "Response Plan," by the contractor. This response plan shall detail the cause of INOPERABLE equipment and efforts made to restore the outage. The plan shall also detail the condition of the material at risk and relay any foreseen hazards to the material expected while continuing to either remove the material or restore the equipment according the particular Response Plan. Once developed, the Response Plan must be submitted to DOE for approval prior to execution of the plan.

The requirements of LCO 3.0.3 do not apply when the ACTIONS of individual LCOs sufficiently define the remedial measures to be taken.

The exceptions to LCO 3.0.3 are provided in instances where requiring a facility shutdown in accordance with LCO 3.0.3 would not provide appropriate remedial measures for the associated condition of the facility. These exceptions are addressed in the individual LCOs.

LCO 3.0.4 LCO 3.0.4 establishes limitations on changes in MODES or other specified conditions in the Applicability when an LCO is not met. It precludes placing the applicable PROCESS AREA in a different MODE or other specified condition when the following exists:

1. The requirements of an LCO in the MODE or other specified condition to be entered are not met.

2. Continued noncompliance with these requirements would result in requiring that the applicable PROCESS AREA be placed in a MODE or other specified condition in which the LCO does not apply with the ACTIONS.

LCO 3.0.4 (continued) Compliance with ACTIONS that permit continued operation of the applicable PROCESS AREA for an unlimited period of time in an applicable MODE or other specified condition provides an adequate level of safety for continued operation. This is without regard to the status of the applicable PROCESS AREA before or after the MODE change. Therefore, in such cases, entry into a MODE or other condition in the Applicability may be made in accordance with the provisions of the ACTIONS. The provisions of this LCO shall not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before applicable PROCESS AREA is allowed to change MODES.

The provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the applicability that are required to comply with ACTIONS.

Exceptions to LCO 3.0.4 are stated in the individual LCOs. Exceptions may apply to all the ACTIONS or to a specific ACTION of an LCO.

When changing MODES or other specified conditions while in a condition (in compliance with LCO 3.0.4 or where an exception to LCO 3.0.4 is stated), the ACTIONS define the remedial measures that apply. Surveillances do not have to be performed on the associated INOPERABLE equipment (or on variables outside the specified limits), as permitted by SR 4.0.1. Therefore, a change in MODE or other specified condition in this situation does not violate SR 4.0.1 or 4.0.4 for those surveillances that do not have to be performed because of the associated INOPERABLE equipment. However, SRs shall be met to demonstrate OPERABILITY before declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected LCO.

LCO 3.0.5 LCO 3.0.5 establishes the allowance of restoring equipment to service under ACs when it has been removed from service or declared INOPERABLE to comply with ACTIONS. The sole purpose of this LCO is to provide an exception to LCO 3.0.2 to allow the performance of SRs to demonstrate the following:

1. OPERABILITY of the equipment being returned to service.

2. OPERABILITY of other equipment.

The ACs are to ensure the time the equipment is returned to service in conflict with the requirements of the actions is limited to the time absolutely necessary to perform the allowed SR. This LCO does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of other equipment is taking an INOPERABLE channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of an SR on another channel in the other trip system. Another similar example of demonstrating the OPERABILITY of other equipment is taking a channel out of the tripped condition to permit the logic to function and indicating the appropriate response during the performance of an SR on another channel in the same trip system.

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the TSRs. This exception is necessary because LCO 3.0.2 would require that the conditions and ACTIONS of the associated INOPERABLE supported system LCO be entered solely from the INOPERABILITY of the support system. This exception is justified because the actions that are required to ensure that the plant is maintained in a safe condition may all be specified in the support system's ACTIONS including those that relate to protecting the supported system. These support system ACTIONS may include entering the supported system's conditions and ACTIONS or may specify other ACTIONS that appropriately protect the supported system. For example, loss of a battery charger (support system) may allow the battery (supported system) to operate for up to 2 hours because that is the minimum time capability for charged battery.

When a support system is INOPERABLE and there is an LCO specified for it in the TSRs, the supported system(s) is required to be declared INOPERABLE as a result of the support system INOPERABILITY. However, it is not necessary to enter into the supported system's conditions and ACTIONS unless directed to do so by the support system's ACTIONS. The confusion and inconsistency of interpretation of requirements related to the entry into multiple conditions and ACTIONS shall be eliminated by providing all the actions that are necessary to be taken to ensure that the facility is maintained in a safe condition in the support system's ACTIONS. If the support system ACTIONS have not been developed to account for protection of the supported system, then the supported system ACTIONS must be entered IMMEDIATELY upon loss of the support system. There is no intent here to neglect entering the supported systems ACTIONS when the support system ACTIONS have failed to provide the necessary protection for both itself and the supported system.

Some support system LCOs are at a level where evaluations of impact on the OPERABILITY of the supported system are not required. Although the support system may result in some degradation of the supported system, it does not, in and of itself, always cause instantaneous INOPERABILITY of the supported system. Examples of this type of support system are fuel oil and battery charging.

When a support system is INOPERABLE and there is no LCO specified for it, the impact of the degradation of the support system function on the OPERABILITY of its supported systems shall be evaluated. The degradation of the support system may or may not affect the OPERABILITY of the supported systems. OPERABILITY of the supported system shall depend on the intended function of the supported system and the level of support that the supported system provides. Unless otherwise justified (on determination that the supported system is INOPERABLE), the conditions and ACTIONS of the supported system's LCO shall apply or other compensatory actions or requirements shall apply, as otherwise justified.

B4.0 SURVEILLANCE REQUIREMENTS

General

SRs 4.0.1 through 4.0.4 establish the general requirements applicable to all SRs and apply at all times, unless otherwise stated.

SR 4.0.1

SR 4.0.1 establishes the requirement that SRs shall be met during the MODES or other specified conditions in the applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This SR ensures that surveillances are performed to VERIFY the OPERABILITY of systems and components and that variables are within specified limits. Failure to meet a surveillance within the specified FREQUENCY, in accordance with SR 4.0.2, constitutes a failure to meet an LCO.

Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this SR, however, is to be construed as implying that systems or components are OPERABLE when:

1. The systems or components are known to be INOPERABLE, although still meeting the SRs.

2. The requirements of the surveillance(s) are known not to be met between required surveillance performances.

Surveillances do not have to be performed when the applicable PROCESS AREA is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified.

Surveillances, including surveillances invoked by ACTIONS, do not have to be performed on INOPERABLE equipment because the ACTIONS define the remedial measures that apply. SRs have to be met in accordance with SR 4.0.2 before returning equipment to OPERABLE status.

Upon completion of maintenance, appropriate post-maintenance testing is required to declare equipment OPERABLE. This includes meeting applicable SRs in accordance with SR 4.0.2. Post-maintenance testing may not be possible in the current MODE or other specified conditions in the applicability because the necessary FACILITY parameters were not established. In these situations, the equipment may be considered OPERABLE, provided that testing has been satisfactorily completed to the extent possible and that the equipment is not otherwise believed to be incapable of performing its function. This shall allow operation to proceed to a MODE or other specified condition where other necessary post-maintenance tests can be completed.

SR 4.0.2

SR 4.0.2 establishes the requirements for meeting the specified FREQUENCY for surveillances and any ACTION with a completion time that requires the periodic performance of the ACTION on a, "every..." interval.

SR 4.0.2 permits a 25% extension of the interval specified in the FREQUENCY. This facilitates surveillance scheduling and considers facility operating conditions that may not be suitable for conducting the surveillance (e.g., transient conditions or other ongoing surveillance or maintenance activities).

SR 4.0.2 (continued)

The 25% extension does not significantly degrade the reliability that results from performing the surveillance at its specified FREQUENCY. This is based on the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 4.0.2 are those surveillances for which the 25% extension of the interval specified in the FREQUENCY does not apply. These exceptions are stated in the individual SRs. An example of where SR 4.0.2 does not apply is a surveillance with a FREQUENCY of "in accordance with another DOE regulation." The requirements of regulations take precedence over the TSRs. The TSRs cannot, in and of themselves, extend a test interval specified in the regulations. Therefore, there would be a note in the FREQUENCY stating, "SR 4.0.2 is not applicable."

As stated in SR 4.0.2, the 25% extension also does not apply to the initial portion of a periodic completion time that requires performance on a, "every..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the ACTION, whether it is a particular surveillance or some other remedial action, is considered a single action with a single completion time. One reason for not allowing the 25% extension to this completion time is that such an ACTION usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the INOPERABLE equipment in an alternative manner.

The provisions of SR 4.0.2 are not intended to be used repeatedly as an operational convenience to extend surveillance intervals or periodic completion time intervals beyond those specified.

SR 4.0.3

SR 4.0.3 establishes the flexibility to defer declaring affected equipment INOPERABLE or an affected variable outside the specified limits when a surveillance has not been completed within the specified FREQUENCY. A delay period of up to 24 hours applies from the time it is discovered that the surveillance has not been performed, in accordance with SR 4.0.2, and not at the time the specified FREQUENCY was not met.

This delay period provides an adequate time limit to complete missed surveillances. This delay period permits the completion of a surveillance before compliance with ACTIONS or other remedial measures would be required that may preclude completion of the surveillance.

The basis for this delay period includes consideration of facility conditions, adequate planning, availability of personnel, the time required to perform the surveillance, the safety significance of the delay in completing the required surveillance, and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the SRs.

When a surveillance with a FREQUENCY, based not on time intervals but on specified facility conditions or operational situations, is discovered not to have been performed when specified, SR 4.0.3 allows the full 24-hour delay period in which to perform the surveillance.

The provisions of SR 4.0.3 also provide a time limit for completion of surveillances that become applicable as a consequence of MODE changes imposed by ACTIONS.

SR 4.0.3 (continued) Failure to comply with specified frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 4.0.3 is a flexibility that is not intended to be used as an operational convenience to extend surveillance intervals.

If a surveillance is not completed within the allowed delay period, the equipment is considered INOPERABLE or the variable is considered outside the specified limits. The completion times of the ACTIONS for the applicable conditions begin IMMEDIATELY on expiration of the delay period. If a surveillance is failed within the delay period, the equipment is INOPERABLE or the variable is outside the specified limits. The completion times of the ACTIONS for the applicable conditions begin IMMEDIATELY on the failure of the surveillance.

Completion of the surveillance within the delay period allowed by this SR or within the completion time of the ACTIONS restores compliance with SR 4.0.1.

SR 4.0.4 SR 4.0.4 establishes the requirement that all applicable SRs shall be met before entry into a MODE or other specified condition in the applicability.

This SR ensures that system and component OPERABILITY requirements and variable limits are met before entry into a MODE or other specified conditions in the applicability for which these systems and components ensure safe operation of the facility. This specification applies to changes in MODES or other specified conditions in the applicability associated with facility shutdown as well as start-up.

The provisions of SR 4.0.4 shall not prevent changes in MODES or other specified conditions in the applicability that are required to comply with ACTIONS.

SR 4.0.4 (continued) The precise requirements for performance of SRs are specified such that exceptions to SR 4.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs in accordance with the requirements of SR 4.0.4 are specified in the FREQUENCY, in the surveillance, or both. This allows performance of surveillances when the prerequisite condition(s) specified in a surveillance procedure require entry into the MODE or other specified condition in the applicability of the associated LCO before the performance or completion of a surveillance. A surveillance (which could not be performed until after entering the LCO applicability) would have its FREQUENCY specified such that it is not "due" until the specific conditions needed are met. Alternately, the surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been reached. The SRs are annotated consistent with the requirements of Section 1.6, "SURVEILLANCE REQUIREMENT FREQUENCY."

B3.1.1 Fire Suppression System For the Waste Handling Building And Support Building

Background Summary

The WIPP fire protection system is designed to ensure personnel safety, mission continuity, and property conservation. Building designs incorporate features for fire prevention. The plant design meets the improved risk level of protection defined in DOE O 420.1A[3] and satisfies applicable sections of the National Fire Protection Association codes, DOE Orders, and Waste Isolation Pilot Plant Fire Hazard Analysis Report, May 2002.

The WIPP fire protection system design incorporates the following features:

- Most buildings and their support structures are protected by fixed, automatic fire suppression systems designed to the individual hazards of each area.
- Noncombustible construction, fireproof masonry construction, and fire resistant materials are used whenever possible.
- Fire separations are installed where required because of different occupancies per the Uniform Building Code.
- In multistory buildings, vertical openings are protected by enclosing stairways, elevators, pipe-ways, electrical penetrations, etc., to prevent fire from spreading to upper floors.
- A combustible loading control program is in place to minimize the accumulation of combustibles within the WHB and to ensure that combustibles will not have sufficient energy for a fire to propagate.

The components of the electrical service and distribution system are listed by Underwriters Laboratory (UL), or approved by Factory Mutual (FM) Engineering Corporation, and are installed to minimize possible ignition of combustible material and maximize safety.

Adequate provisions for the safe exit of personnel are available for all potential fire occurrences with evacuation alarm signals provided throughout occupied areas. Building evacuation plans help ensure the safe evacuation of building occupants during emergency conditions. The WIPP emergency management program contains the underground emergency procedures, the underground evacuation routes, and the designated assembly areas.

The WIPP fire protection system two main subsystems addressed in this TSR are:

- Fire water supply system
- Fire suppression system

The fire water supply system is described in LCO 3.1.2 .

Background Summary (continued)

Fire Suppression System:

The fire suppression system consists of several different fire extinguishing systems or equipment that service the SURFACE buildings and facilities and the UNDERGROUND areas. These may include any one or more of the following fire extinguishing capabilities: automatic wet pipe sprinkler system, fire hose connections, automatic dry and wet chemical extinguishing systems, and portable fire extinguishers.

The automatic wet pipe sprinkler system is the principal above ground fire suppression system at WIPP, including the WHB and Support Building systems which are protected by this TSR. Its actuation is totally mechanical, by fusible sprinklers, and requires no electrical signal or power.

A wet pipe sprinkler system consists of a fixed piping network with installed fusible sprinklers. The system also has a main drain, a pressure gage, a water flow detection device, and an Inspectors Test Connection, which includes the ITV. Additional sprinkler system features may include an isolation valve and alarm check valve, a water motor gong, and a fire department connection.

Sprinkler systems are maintained full of water and pressurized by the fire water supply and distribution system. When a fire occurs, the heat produced will fuse one or more sprinklers in the area, causing water to flow through these sprinklers. This water flow will activate the sprinkler system water flow device, which will send a signal to the local fire panel, causing an annunciator to alarm and an alarm signal to be sent to the Central Monitoring Room (CMR). The sprinkler system will continue to flow until it is shut off manually.

A majority of sprinkler systems with an alarm check valve have a relief valve installed downstream of the check to maintain system pressure at or below 175 psig, which is the designed working pressure of the systems.[4] The relief valves protect the piping from high pressures due to pressure surges and thermal expansion of the trapped water.

PIVs are provided for isolation and sectional control of the distribution system. A PIV is a buried gate valve with an attached, above ground operator post, which also provides valve position indication. A PIV is installed in every branch line to a building sprinkler system. PIVs are also installed in the main piping to provide sectional control. These PIVs are spaced to minimize the impact of a break in the main piping.

Application to Safety

LCO 3.1.1 ensures the OPERABILITY of the fire suppression system for the WHB and the Support Building. The fire suppression systems for the WHB and the Support Building are credited with reducing the frequency of a large fire causing the release of WASTE material.[5] The fire suppression system accomplishes this function by preventing a small fire in the from becoming a large fire that could cause significant damage to WASTE.

The fire of concern could also originate in an area of the WHB (e.g., RH bay, TMF) or the Support Building and propagate into the CH BAY. Therefore, the fire suppression systems in the remainder of the WHB (not just the CH BAY) and the Support Building are essential to preventing a fire from spreading to the CH BAY and impacting the WASTE.

LCO

The WHB and Support Building are protected by automatic wet-pipe sprinkler systems. The sprinkler systems must be OPERABLE to respond to a fire. OPERABILITY of the sprinkler systems consists of the following:

- The static pressure at each riser identified in Table 3.1.1-1 shall be greater than or equal to 125 psig.
- The main isolation valve at each riser identified in Table 3.1.1-1 shall be locked in the open position.
- All other system isolation valves identified in Table 3.1.1-2 shall be locked in the open position.
- The PIVs identified in Table 3.1.1-1 shall be locked in the open position.
- Water flow indication when the ITVs identified in Table 3.1.1-1 is opened.
- Main drain test results are less than or equal to 20% pressure change.

OPERABILITY is verified by performing periodic checks of system pressure, routine inspection of system components and testing to ensure system operation (see SRs and Bases for 4.1.1.1, 4.1.1.2, 4.1.1.3, 4.1.1.4, 4.1.1.5, and 4.1.1.6).

MODE Applicability

The only MODEs in which WASTE is susceptible to a fire in the above ground areas are WASTE HANDLING and WASTE STORAGE. These are the only two MODEs that allow the WASTE to be present outside of the transportation containers in the above ground areas. The transportation containers are designed to sustain the impact of a fire; therefore, these containers provide some protection for the WASTE which minimizes the potential release. In addition, WASTE HANDLING is the only MODE in which WASTE can be physically handled. Refraining from handling the WASTE reduces the number of possible initiators for a fire and reduces the exposure of the WASTE to these initiators. Therefore, this LCO is applicable only during the WASTE HANDLING and WASTE STORAGE MODEs.

PROCESS AREA Applicability

The fire suppression systems for the WHB and the Support Building are credited with reducing the frequency of a large fire by preventing the growth of a small-scale fire in the WHB or in an adjacent facility which may spread into the WHB. The CH BAY is the only PROCESS AREA located within the WHB; therefore, this LCO is only applicable to the CH BAY. This PROCESS AREA is of concern due to the fact that the majority of the above-ground WASTE handling occurs in this area. In addition, the WASTE may be handled and/or stored in the CH BAY outside of the transportation containers, which increases the potential impact of a fire on the WASTE.

ACTIONS

ACTION A.1

When the fire suppression system in the WHB is INOPERABLE, no additional TRUPACT-IIs or HalfPACTs with WASTE will be introduced into the CH BAY and CLOSED TRUPACT-IIs or HalfPACTs with WASTE in the CH BAY will not be opened. This requirement shall apply IMMEDIATELY upon entering Condition A. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION due to the fact that the introduction of additional WASTE increases the potential consequences of a fire. As the WASTE in other above-ground areas is required to be in a closed transportation container, there is less risk associated with the WASTE remaining in these areas (e.g., parking area) than there is with unloading WASTE in the CH BAY.

ACTION A.2

When the fire suppression system in the WHB is INOPERABLE, a FIRE WATCH shall be posted IMMEDIATELY in the AFFECTED AREA(s). As defined, the FIRE WATCH provides continuous monitoring of the area and allows for the notification and/or extinguishment of an incipient fire. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION because the FIRE WATCH performs the same safety function as the fire suppression system. Therefore, when the fire suppression system is INOPERABLE it is essential that there be an alternate form of fire detection to prevent the development of a large-scale fire.

Separate portions of the fire suppression system may become INOPERABLE independently (e.g., pressure at the CH BAY riser is below requirements while the pressure at the RH BAY riser is within the acceptable limits); therefore, the FIRE WATCH is only required for the AFFECTED AREA(s).

ACTION A.3

WASTE HANDLING OPERATIONS introduce additional initiators for a fire and increase the exposure of the WASTE to these initiators; therefore, it is important to eliminate these factors. However, the safest MODE for the CH BAY is STANDBY in which there is no WASTE present in the PROCESS AREA. In order to decrease the potential fire consequences, WASTE HANDLING OPERATIONS may need to continue so that WASTE can be removed from the CH BAY (either returned to the SURFACE or place in the UNDERGROUND). Though, if this can not be accomplished in a timely fashion, there may be more risk associated with continuing these operations. Therefore, the ACTION requires all WASTE HANDLING OPERATIONS in the CH BAY to be stopped within 48 hours.

The Completion Time of 48 hours is an appropriate time-frame for this Required ACTION. This allows ample time to complete WASTE HANDLING OPERATIONS in progress and place the WASTE in the safest possible configuration. The risk of a fire is relatively low within this short time period and the FIRE WATCH established in accordance with ACTION A.2 is capable of detecting and providing notification and/or extinguishment of incipient fires.

ACTION A.4

The INOPERABLE portion of the fire suppression system for the WHB shall be restored to OPERABLE within 2 WEEKS. The successful completion of this ACTION limits the time that the WASTE is unprotected and susceptible to fire damage. The Completion Time of 2 WEEKS provides adequate time to complete maintenance activities to return the system to OPERABLE status. This time frame is acceptable based on the low probability of a fire event within this period and recognizes the reduction in risk provided by the suspension of WASTE HANDLING OPERATIONS and the implementation of a FIRE WATCH. The two-week period is expected to allow sufficient time to perform the needed repairs to the fire suppression system.

ACTION B.1

The safety function of the fire suppression system in the Support Building is to prevent fires from becoming large enough to propagate into the CH BAY and impact the WASTE. When the fire suppression system in the Support Building is INOPERABLE, no additional TRUPACT-IIs or HalfPACTs with WASTE will be introduced into the CH BAY and CLOSED TRUPACT-IIs or HalfPACTs with WASTE in the CH BAY will not be opened. This requirement shall apply IMMEDIATELY upon entering Condition A. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION due to the fact that the introduction of additional WASTE increases the potential consequences of a fire. As the WASTE in other above ground areas is required to be in a closed transportation container, there is less risk associated with the WASTE remaining in these areas (e.g., parking area) than there is with bringing WASTE into the CH BAY.

ACTION B.2

When the fire suppression system in the Support Building is INOPERABLE, a FIRE WATCH shall be posted IMMEDIATELY in the AFFECTED AREA(s). As defined, the FIRE WATCH provides continuous monitoring of the area and allows for the notification and/or extinguishment of an incipient fire. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION because the FIRE WATCH performs the same safety function as the fire suppression system. Therefore, when the fire suppression system is INOPERABLE it is essential that there be an alternate form of fire detection to prevent the development of a large-scale fire capable of spreading into the CH BAY.

Separate portions of the fire suppression system may become INOPERABLE independently; therefore, the FIRE WATCH is only required for the AFFECTED AREA(s). For the Support Building, the AFFECTED AREA will be the entire building in most instances.

ACTION B.3 The INOPERABLE portion of the fire suppression system for the Support Building shall be restored to OPERABLE within 2 WEEKS. The successful completion of this ACTION limits the time that the WASTE is unprotected and susceptible to damage due to a fire propagating into the CH BAY from the Support Building. The Completion Time of 2 WEEKS provides adequate time to complete maintenance activities to return the system to OPERABLE status. This time frame is acceptable based on the low probability of a fire event within this period and recognizes the reduction in risk provided by the implementation of a FIRE WATCH. The 2-week period is expected to allow sufficient time to perform the needed repairs to the fire suppression system.

SRs

SR 4.1.1.1 Adequate water supply pressure is required for the proper functioning of the Waste Handling Building and Support Building fire suppression systems. VERIFICATION shall be made on a MONTHLY basis that the water supply pressure is greater than or equal to 125 psig at each sprinkler system. This pressure is considered to be adequate based on engineering judgment and past observations of tests that water is available to the waste hoist tower at this pressure. VERIFICATION consists of reading the specified gauges listed in Table 3.1.1-1for each system.

The above instrument value is not supported by an instrument uncertainty measurement calculation. Instead, it is supported by engineering judgment and expected margins to accommodate instrument measurement uncertainty. This FREQUENCY is based upon the Exception Paragraph 2.2.4.2 of NFPA Standard 25, *Testing and Maintenance of Water Based Fire Protection Systems*.[6] Failure to meet or perform this SR requires entry into Condition A or B according to where the INOPERABLE system is found.

The specified gauges listed in Table 3.1.1-1 for each Waste Handling Building and Support Building fire suppression system are a sealed gauge that are calibrated to a specified accuracy from the manufacture and therefore cannot be recalibrated. During the MONTHLY verification of the 125 psig, if a gauge is found to be INOPERABLE the system must be declared INOPERABLE, and Condition A or B entered according to where the INOPERABLE gauge was found.

SR 4.1.1.2 VERIFICATION shall be made MONTHLY that the main isolation valve on each of risers in the Waste Handling or the Support Building fire suppression system as listed in Table 3.1.1-1 is locked open. This SR ensures that all required main isolation valves for the Waste Handling Building and Support Building sprinkler systems are verified in the locked open position providing assurance that an unobstructed flow path exists and that water supply is available to the sprinklers. The MONTHLY FREQUENCY has been determined to be adequate based upon NFPA criteria, past experience, and engineering judgment. Failure to meet or perform this SR requires entry into Condition A or B according to where the INOPERABLE system is found.

SR 4.1.1.3 VERIFICATION shall be made MONTHLY that the isolation valves listed in Table 3.1.1 2 within the Waste Handling Building and Support Building suppression systems are locked open. This SR ensures that these valves are verified in the locked open position providing assurance that an unobstructed flow path exists and that water supply is available to the sprinklers. The MONTHLY FREQUENCY has been determined to be adequate based upon engineering judgment and NFPA FREQUENCY requirements for other such in-line valves. Failure to meet or perform this SR requires entry into Condition A or B according to where the INOPERABLE system is found.

SR 4.1.1.4 VERIFICATION shall be made MONTHLY that the PIV(s) for the Waste Handling or the Support Building fire suppression system as listed in Table 3.1.1-1 is locked open. This SR ensures that all required PIVs for the Waste Handling Building and Support Building sprinkler systems are verified in the locked open position providing assurance that an unobstructed flow path exists and that water supply is available to the sprinklers. The MONTHLY FREQUENCY has been determined to be adequate based upon NFPA criteria, past experience, and engineering judgment. Failure to meet or perform this SR requires entry into Condition A or B according to where the INOPERABLE system is found.

SR 4.1.1.5 The ITV(s) shall be opened QUARTERLY for each riser in the Waste Handling or the Support Building sprinkler system listed in Table 3.1.1-1. The test is performed to ensure that the systems operate as expected. The QUARTERLY FREQUENCY meets the requirements of NFPA Standard 25.[6] Failure to meet or perform this SR requires entry into Condition A or B.

SR 4.1.1.6 A Main Drain Test shall be performed ANNUALLY on each Waste Handling or Support Building riser listed in Table 3.1.1-1 to demonstrate that riser supply pressure responds appropriately to indicate flow path obstructions when the main drain valve is cycled. This SR allows those normal pressure variations that occur when water flows through the main drain valve at the riser. A fully or partially closed valve or other obstruction in the supply piping will cause an abnormally large drop in full flow pressure of the main drain when opened and a slow return to normal static pressure when closed. Acceptable variation in pressure indicates that all valves in the flow path from fire main up to the riser are open and that no other obstructions in the piping leading up to the riser exist. The acceptable variation is a pressure drop of less than or equal to 20% pressure change. System pressure must return to normal operating pressure upon closure of the main drain valve. The ANNUALLY FREQUENCY meets the requirements of NFPA Standard 25.[6] Failure to meet or perform this SR requires entry into Condition A or B according to where the INOPERABLE system is found.

B3.1.2 Fire Water Supply System

Background Summary

The Fire water supply system provides fire water at the design pressure and quantity to the yard fire hydrants and the automatic wet pipe sprinkler systems. The system consists of two fire pumps and a pressure maintenance (jockey) pump located in the water pump house.

One fire pump is electric motor driven and the other pump is diesel engine driven. Both pumps are rated for 1,500 gallons (5678 L) per minute at 105 psi (8.8 kg/cm^2).[4] The system is required to provide fire water at a rate of 1,500 gallons (5678 L) per minute for 2 hours for a total of 180,000 gallons (681,354 L). All major components of the fire water supply system are UL-listed and FM-approved.

Operation of the two fire pumps and the jockey pump is controlled by distribution system pressure changes. The pumps are arranged for sequential operation. Under normal conditions, the jockey pump operates to maintain the designed system static pressure. The jockey pump starts when the system pressure falls to 130 psig and stops at 140 psig.[4]

Should there be a demand for fire water which exceeds the capacity of the jockey pump, the fire water demand should cause the system pressure to drop which automatically starts the electric fire pump. The electric fire pump is arranged to start automatically when the system pressure falls to 120 psig. The pump will stop automatically when the system pressure reaches 140 psig and a preset time delay of 6.5 minutes has elapsed.[4]

If the jockey and electric fire pumps cannot maintain system pressure, the diesel pump automatically starts. The diesel fire pump is arranged to start automatically when the system pressure falls to 110 psig. The normal shutdown mode of the pump is manual, by depressing the STOP button on the front of the pump's controller.[4]

The fire water supply system receives its normal water supply from one of two on-site 180,000 gallons (681,354 L) ground-level storage tanks, which are part of the water distribution system. The second tank supplies water to the domestic/utility water system, which is a separate system from the fire water supply system. The domestic/utility water tank reserves approximately 100,000 gallons (378,540 L) of water for use as fire water if the need arises.

The system's piping configuration allows for the system to be supplied water from either water storage tank. The piping configuration also allows either fire pump to be removed from service without impacting the operation of the other fire pump. Additionally, the fire pumps can discharge through either pipe line exiting the pump house via the discharge piping cross-connect. This cross-connect also allows either pump to use the "test header" and the recirculation pipe back to the south storage tank.

To avoid an unprotected cross-connect with the domestic water/utility system, which uses the north water storage tank as its supply source, the fire water suction piping to the north water storage tank contains a spool piece, which is normally not installed. The spool piece is installed when it is necessary to use the water in the north tank as source of fire water.

Application to Safety

LCO 3.1.2 ensures the OPERABILITY of the fire water supply system which is essential to the proper performance of the sprinkler systems in the individual facilities. Again, the event of concern is the large fire and the fire water supply system is required to provide water to prevent the propagation of small fires within the WHB and Support Building.

LCO

The fire water supply system provides water to the fire suppression systems identified in LCO 3.1.1. In order for the fire suppression systems to operate properly, the fire water supply system must be OPERABLE. OPERABILITY of the fire water supply system consists of the following:

- The system shall maintain a water capacity of ≥ 135,000 gallons.
- The system shall have two OPERABLE fire pumps.

OPERABILITY is verified by performing periodic checks of the available water supply, routine inspection of system components, and testing to ensure system operation (see SRs and Bases for 4.1.2.1, 4.1.2.2, 4.1.2.3, 4.1.2.4, and 4.1.2.5).

MODE Applicability

The only MODEs in which WASTE is susceptible to a fire in the above ground areas are WASTE HANDLING in the CH Bay, WASTE HANDLING in the UNDERGROUND during WASTE transport using the waste hoist, and WASTE STORAGE. These are the only MODEs that allow the WASTE to be present outside of the transportation containers in the above ground areas. The transportation containers are designed to sustain the impact of a fire; therefore, these containers provide some protection for the WASTE which minimizes the potential release. Refraining from handling the WASTE reduces the number of possible initiators for a fire and reduces the exposure of the WASTE to these initiators. Therefore, this LCO is applicable only during the WASTE HANDLING MODE in the CH Bay, WASTE HANDLING MODE in the UNDERGROUND during WASTE transport using the waste hoist, and WASTE STORAGE MODE.

PROCESS AREA Applicability

The fire suppression systems for the WHB and the Support Building are credited with reducing the frequency of a large fire by preventing the growth of a small fire in the WHB or in an adjacent facility which may spread into the WHB. This LCO is applicable to the CH BAY and to the UNDERGROUND during WASTE transport using the waste hoist. The CH Bay is of concern due to the fact that the majority of the above-ground WASTE handling occurs in this area. In addition, the WASTE may be handled and/or stored in the CH BAY outside of the transportation containers, which increases the potential impact of a fire on the WASTE. The UNDERGROUND PROCESS AREA during WASTE transport using the waste hoist is a concern for protection of the waste hoist tower from fire which could initiate waste hoist failure and uncontrolled drop of WASTE down the waste shaft.

ACTIONS

ACTION A.1

When the fire water capacity is < 135,000 gallons, the OPERABILITY of the fire suppression systems is in jeopardy. The limit of 135,000 gallons provides enough fire water to supply the system for 1-1/2 hours, based on the output of the fire pumps. Therefore, when the fire water capacity is below the required level, no additional TRUPACT-IIs or HalfPACTs with WASTE will be introduced into the CH BAY and CLOSED TRUPACT-IIs or HalfPACTs with WASTE in the CH BAY will not be opened. This requirement shall apply IMMEDIATELY upon entering Condition A. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION due to the fact that the introduction of additional WASTE increases the potential consequences of a fire. As the WASTE in other above-ground areas is required to be in a closed transportation container, there is less risk associated with the WASTE remaining in these areas (e.g., parking area) than there is with unloading WASTE in the CH BAY.

ACTION A.2

When the fire water capacity is below the required level, a FIRE WATCH shall be posted IMMEDIATELY in the CH BAY. As defined, the FIRE WATCH provides continuous monitoring of the area and allows for the notification and/or extinguishment of an incipient fire. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION because the FIRE WATCH performs the same safety function as the fire suppression system. Therefore, when the fire suppression system capabilities are diminished it is essential that there be an alternate form of fire detection to prevent the development of a large-scale fire.

The FIRE WATCH is only needed in the CH BAY (as opposed to the WHB and/or the Support Building) due to the fact that the system is not completely void of fire water. As previously stated, 135,000 gallons of water provide approximately 1-1/2 hours of fire suppression capabilities; therefore, the fire suppression systems are not completely INOPERABLE. This amount of water is judged to be an appropriate amount to provide protection from fires spreading into the CH BAY from adjacent buildings.

ACTION A.3

When the fire water capacity is below the required level, actions shall be initiated to restore the water volume. The initiation of these actions shall be performed IMMEDIATELY upon entering Condition A. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION because the fire water supply supports all of the fire suppression systems for the site, including those identified in LCO 3.1.1. Therefore, it is essential that efforts begin as soon as possible to restore the water to the system.

ACTION A.4.1

The fire water capacity shall be restored to≥ 135,000 gallons within 8 hours. The successful completion of this ACTION limits the time that the WASTE is unprotected and susceptible to damage due to a fire. The Completion Time of 8 hours provides adequate time to restore the water capacity under the most likely circumstances. This time frame is acceptable based on the low probability of a fire event within this period and recognizes the reduction in risk provided by the implementation of a FIRE WATCH.

ACTION A.4.2

If the fire water capacity can not be restored to the required level within the eight-hour time frame established in ACTION A.4.1, all WASTE HANDLING OPERATIONS must be suspended in the CH BAY. WASTE HANDLING OPERATIONS introduce additional initiators for a fire and increase the exposure of the WASTE to these initiators; therefore, it is important to eliminate these factors. However, the safest MODE for the CH BAY is STANDBY in which there is no WASTE is outside of CLOSED TRUPACT-IIs or HalfPACTs . In order to decrease the potential fire consequences, WASTE HANDLING OPERATIONS may need to continue so that WASTE can be removed from the CH BAY (either returned to the SURFACE or place in the UNDERGROUND). Therefore, the ACTION requires all WASTE HANDLING OPERATIONS in the CH BAY to be stopped within 8 hours if the fire water capacity is not restored.

The Completion Time of 8 hours is an appropriate time-frame for this Required ACTION. This allows time to complete the most essential WASTE HANDLING OPERATIONS and place the WASTE in the safest possible configuration. The risk of a fire is relatively low within this short time period and the FIRE WATCH established in accordance with ACTION A.2 is capable of detecting and providing notification and/or extinguishment of incipient fires in the CH BAY. In addition, a limited amount of water may remain in the system that can be employed if necessary.

ACTION B.1.1

This ACTION requires all WASTE HANDLING OPERATIONS in the CH BAY to be stopped within 1 week. WASTE HANDLING OPERATIONS introduce additional initiators for a fire and increase the exposure of the WASTE to these initiators; therefore, it is important to minimize these factors. The safest MODE for the CH BAY is STANDBY in which there is no WASTE present outside of CLOSED TRUPACT-IIs or HalfPACTs in the PROCESS AREA. In order to decrease the potential fire consequences, WASTE HANDLING OPERATIONS may need to continue so that WASTE can be removed from the CH BAY (either returned to the SURFACE or disposed of in the UNDERGROUND). In addition, the fire water supply to the fire suppression systems has not been discontinued, rather the redundancy of the system has been eliminated; therefore, operations can be continued with a relatively low fire risk. For these reasons, the Completion Time of 1 week is judged to be an appropriate time frame for this Required ACTION.

ACTION B.1.2

The alternative to stopping WASTE HANDLING OPERATIONS is to restore the OPERABLITY of the affected fire pump within 1 week. The successful completion of this ACTION restores the redundancy of the system, thereby eliminating the increased risk. The Completion Time of 1 week provides adequate time to complete most maintenance activities to return the pump to OPERABLE status. The Completion Time of 1 week is based on engineering judgment and recognizes the low level of risk involved with the INOPERABILITY of only one fire pump.

ACTION C.1

When both fire pumps are INOPERABLE no means exist to distribute the fire water to the individual sprinkler systems. Therefore, when both fire pumps are INOPERABLE, no additional TRUPACT-IIs or HalfPACTs with WASTE will be introduced into the CH BAY and CLOSED TRUPACT-IIs or HalfPACTs with WASTE in the CH BAY will not be opened. This requirement shall apply IMMEDIATELY upon entering Condition A. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION due to the fact that the introduction of additional WASTE increases the potential consequences of a fire. As the WASTE in above ground areas is required to be in a closed transportation container, there is less risk associated with the WASTE remaining in these areas than there is with unloading the WASTE from the transportation container into the CH BAY.

ACTION C.2

When both fire pumps are INOPERABLE, a FIRE WATCH shall be posted IMMEDIATELY in the CH BAY. As defined, the FIRE WATCH provides continuous monitoring of the area and allows for the notification and/or extinguishment of an incipient fire. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION because the FIRE WATCH performs the same safety function as the fire suppression system. Therefore, when the fire suppression system capabilities are diminished it is essential that there be an alternate form of fire detection to prevent the development of a large-scale fire.

The FIRE WATCH is needed in the WHB and the Support Building due to the fact that with both fire pumps INOPERABLE, the system has no capability of providing fire water to the sprinkler systems. In this condition, neither the WHB nor the Support Building have the capability to detect and/or extinguish incipient fires. Therefore, a FIRE WATCH is required in both of these locations to prevent a large-scale fire from developing in or propagating into the CH BAY and impacting the WASTE.

ACTION C.3.1

The OPERABILITY of at least one fire pump shall be restored within 8 hours. The successful completion of this ACTION limits the time that the WASTE is unprotected and susceptible to damage due to a fire. The Completion Time of 8 hours provides adequate time to restore fire pumps under the most likely circumstances. This time frame is acceptable based on the low probability of a fire event within this period and recognizes the reduction in risk provided by the implementation of a FIRE WATCH.

ACTION C.3.2

If the OPERABILITY of the fire pumps can not be restored within the eight-hour time frame established in ACTION C.3.1, all WASTE HANDLING OPERATIONS must be suspended in the CH BAY. WASTE HANDLING OPERATIONS introduce additional initiators for a fire and increase the exposure of the WASTE to these initiators; therefore, it is important to eliminate these factors. However, the safest MODE for the CH BAY is STANDBY in which there is no WASTE outside of CLOSED TRUPACT-IIs or HalfPACTs in the PROCESS AREA. In order to decrease the potential fire consequences, WASTE HANDLING OPERATIONS may need to continue so that WASTE can be removed from the CH BAY (either returned to the SURFACE or disposed in the UNDERGROUND). Therefore, the ACTION requires all WASTE HANDLING OPERATIONS in the CH BAY to be stopped within 8 hours if the OPERABILITY of the fire pumps is not restored.

The Completion Time of 8 hours is an appropriate time frame for this Required ACTION. This allows time to complete the most essential WASTE HANDLING OPERATIONS and place the WASTE in the safest possible configuration. The risk of a fire is relatively low within this short time period and the FIRE WATCH established in accordance with ACTION C.2 is capable of detecting and providing notification and/or extinguishment of incipient fires in the WHB and/or Support Building.

SRs

SR 4.1.2.1

Adequate water supply is required for the proper functioning of the Waste Handling Building and Support Building fire suppression systems. VERIFICATION shall be made prior to each shift that there is greater than 135,000 gallons of water to fight fires within the fire water distribution system. The initial SR is measured at the 180,000 gallon capacity fire water tank. If the fire water tank is out of service for maintenance, the VERIFICATION is made at the domestic water tank.

The prior to each shift FREQUENCY is adequate based upon the fact that, with pump out of 1500 gpm, the 135,000 gallon level allows for a 1-1/2 hour fire fighting capacity.

SR 4.1.2.2

VERIFICATION shall be made prior to each shift that the isolation valve at the base of the fire water tank is locked open. This SR ensures that the main isolation valve for the fire water distribution system is verified in the locked open position providing assurance that an unobstructed flow path exists and that water supply is available to the sprinklers. The prior to each shift FREQUENCY has been determined to be adequate based upon current practices and far exceeds the NFPA criteria for this type of SR. Failure to meet this SR requires entry into Condition A because if the valve is closed it is the same as having an inadequate water supply.

SR 4.1.2.3

VERIFICATION shall be made prior to each shift that there is greater than 125 gallons of diesel fuel in the diesel fire pump fuel tank. Both the 125 gallon level and the FREQUENCY of prior to each shift are based on current SR practices. The 125 gallons of is judged to be adequate due to the fact that it will fuel the diesel fire pump for a period beyond the required 4 hour time period to empty the 180,000-gallon fire water tank. The FREQUENCY of prior to each shift is again judged to be adequate due to the infrequent number of times the diesel fire pump is required to be started from one shift to the next and there is also an electric fire pump that has the same capacity that is also maintained but is not under a formal surveillance program.

Failure to meet this SR requires entry into Condition B.

SR 4.1.2.4

Perform an automatic start test on the both the electric and the diesel fire pumps WEEKLY. This automatic start test is performed to assure that the diesel fire pump automatically starts when system pressure decreases to 110 ±3 psig and the electric fire pump automatically starts when system pressure decreases to 120 ± 3 psig. The WEEKLY FREQUENCY has been determined to be adequate based upon NFPA criteria. Failure to meet or perform this SR requires entry into Condition B or C according to the number of pumps found to INOPERABLE at a time.

SR 4.1.2.5

VERIFICATION shall be made ANNUALLY that the each fire pump is capable of pumping 1,500 gpm at 105 psi.

The 1,500 gpm at 105 psi net discharge is the rated capacity of the pumps to adequately deliver water supply to the required areas of the WHB and Support Buildings.[4]

The ANNUAL FREQUENCY has been determined to be adequate based upon NFPA criteria. Failure to meet or perform this SR requires entry into Condition B or C according to the number of pumps found to INOPERABLE at a time.

The gauges used during normal operation of both the diesel and the electric fire pumps are removed and replaced with M&TE equipment during the ANNUAL VERIFICATION of the output flow and pressure. Therefore, the sealed gauges normally installed are only used to confirm the output accuracy of the pump(s) under normal operation. Therefore, there is no requirement to calibrate the sealed gauges installed on either the electric or the diesel fire pumps to confirm OPERABILITY.

B3.1.3 Underground Waste Handling Equipment Automatic/Manual Fire Suppression System

Background Summary

The underground waste handling equipment automatic/manual fire suppression system provides a dry chemical fire suppressant available to extinguish vehicle fires associated with fuel line leaks and the vehicle engine. The system is comprised of electric powered detection capability, a compressed nitrogen gas cartridge that, when actuated, fluidizes the fire suppressant powder and forces the powder to the distribution network. The system is equipped with a control module that includes system status lights to indicate normal and trouble conditions, and a provision to test the status lights.

The system automatically actuates when the detection circuit shorts due to heat generated by fire causing current to a squib. The squib is an electrically actuated component containing a small charge of powder which forces a pin to puncture the cap/seal on the compressed nitrogen gas cartridge. The gas is directed via tubing to the fire suppressant container where the suppressant is fluidized and dispersed into the distribution piping. The system also has a manual capability that bypasses the electrical squib, such that the manual actuator forces the pin to break the cap/seal on the compressed nitrogen gas cartridge.

The control module includes status lights that indicate that the system is not discharged and that the detection circuit is functioning properly. The control module is mounted such the operator of the waste handling equipment can see the system status indication.

Application to Safety

LCO 3.1.3 ensures the OPERABILITY of the automatic/manual fire suppression system on waste handling equipment, selected for use, to extinguish any waste handling vehicle fire resulting from ignition of fuel, hydraulic fluid, or electrical failure. The event of concern is preventing a small fire from becoming a larger fire with the potential to cause WASTE containers to breach.

LCO

The waste handling vehicle automatic/manual fire suppression system OPERABILITY is required for the waste handling equipment selected for use as identified in LCO 3.1.3. OPERABILITY of the automatic/manual fire suppression system consists of the following:

- System status lights are functioning properly and no trouble lights are illuminated on the automatic fire suppression system control module.
- A charged fire suppressant system on the waste handling equipment selected for use.

OPERABILITY is verified by performing verification of system status and semi-annual maintenance of the system that includes verification that the control system actuates and that the compressed nitrogen gas cylinder is charged. See SRs and Bases for SRs 4.1.3.1, 4.1.3.2, 4.1.3.3, and 4.1.3.4

MODE Applicability

The MODE in which WASTE is susceptible to a fire resulting from fuel leaks from waste handling equipment is in the UNDERGROUND during WASTE HANDLING.

PROCESS AREA Applicability

The automatic/manual fire suppression system is required for unrestricted use of diesel powered waste handling equipment in the UNDERGROUND to prevent a small vehicle fire from becoming a large fire. The PROCESS AREA includes the base of the waste shaft where the WASTE containers are transferred from the waste hoist conveyance to the waste transporter, the transport path from the waste shaft to the ACTIVE DISPOSAL ROOM, and transfer of WASTE containers from the waste transporter to the disposal array using a diesel powered waste handling forklift. This LCO is applicable to the UNDERGROUND during WASTE HANDLING MODE.

ACTIONS

ACTION A.1

If the automatic/manual fire suppression system is compromised as evidenced by trouble indication on the control module, inadvertent actuation of the fire suppressant powder, or other OPERABILITY concerns discovered during the required surveillance, the system is INOPERABLE. A FIRE WATCH shall be posted IMMEDIATELY with the affected diesel powered waste handling equipment in use to provide monitoring of the equipment and allows for the notification and/or extinguishment of an incipient fire. In this condition, the manual initiation of the fire suppression system remains available. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION because the FIRE WATCH performs the same safety function as the detection and automatic control capability of the automatic portion of the fire suppression system. Therefore, when the automatic fire suppression system capabilities are diminished it is essential that there be an alternate form of fire detection to prevent the development of a large-scale fire.

ACTION A.2

This ACTION allows restoring the OPERABILITY of the automatic fire suppression system for the affected equipment used for WASTE HANDLING OPERATIONS in order to continue WASTE HANDLING OPERATIONS with the affected equipment beyond 48 hours. Completion of this ACTION completes the requirements to exit this LCO. The safest location for WASTE is in the disposal array, and WASTE HANDLING OPERATIONS may need to continue so that WASTE can be placed in the disposal array. With the posting of a FIRE WATCH IMMEDIATELY in ACTION A.1, the automatic fire detection capability has been replaced by the FIRE WATCH. WASTE HANDLING OPERATIONS can be continued with a relatively low risk as the manual actuation capability is still available. Therefore, the Completion Time of 48 hours is sufficient to not only remove WASTE from the affected piece of diesel powered waste handling equipment in use, dispose of the WASTE, complete removal of the backlogged WASTE from the CH BAY, and move the affected piece of diesel powered waste handling equipment for automatic fire suppression system repair/recharge. If it is not possible to complete this ACTION, ACTIONS A.3 or A.4 must be taken.

ACTION A.3

This ACTION allows replacement of the affected equipment in use with equipment that has OPERABLE automatic fire suppression system within 48 hours. Performance of this ACTION completes actions to exit this LCO. With the posting of a FIRE WATCH IMMEDIATELY in ACTION A.1, the automatic fire detection capability has been replaced by the FIRE WATCH. WASTE HANDLING OPERATIONS can be continued as the manual actuation capability is still available. Therefore, the Completion Time of 48 hours is sufficient to remove WASTE from the affected piece of diesel powered waste handling equipment in use, replace the affected equipment with equipment with equipment that an OPERABLE automatic fire suppression capability, and move the affected piece of diesel powered waste handling equipment for automatic fire suppression system repair/recharge. If it is not possible to complete this ACTION, ACTIONS A.2 or A.4 must be taken.

ACTION A.4

This ACTION requires WASTE HANDLING OPERATIONS in the UNDERGROUND using the affected equipment in use to be stopped within 48 hours if ACTION A.2 or A.3 cannot be completed within 48 hours. Performance of this ACTION completes actions to exit this LCO. The safest location for WASTE is in the disposal array, and WASTE HANDLING OPERATIONS may need to continue so that WASTE can be placed in the disposal array. The posting of a FIRE WATCH IMMEDIATELY in ACTION A.1 allows WASTE HANDLING OPERATIONS to be continued with a relatively low risk, as the manual actuation capability is still available, and the automatic fire detection capability has been replaced by the FIRE WATCH. The completion time of 48 hours is sufficient to remove backlogged from the CH Bay, remove WASTE from the affected piece of diesel powered waste handling equipment, and either restore the automatic fire suppression capability or replace the affected piece of equipment with equipment that has an OPERABLE automatic fire suppression system.

ACTION B.1

If the both the automatic and manual portions of the fire suppression system is compromised as evidenced by an inadvertent actuation of the fire suppressant powder, the system is INOPERABLE. A FIRE WATCH shall be posted IMMEDIATELY with the affected diesel powered waste handling equipment in use to provide monitoring of the equipment and allows for the notification and/or extinguishment of an incipient fire. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION because the FIRE WATCH performs the same safety function as the detection and suppression capability of the automatic/manual fire suppression system.

ACTION B.2

This ACTION requires WASTE HANDLING OPERATIONS with the affected equipment to stop within 4 hours. A Completion Time of 4 hours is deemed appropriate since the safest location for WASTE is in the disposal array, and WASTE HANDLING OPERATIONS may need to continue so that WASTE in the UNDERGROUND can be placed in the disposal array. With the posting of a FIRE WATCH IMMEDIATELY in ACTION B.1, the fire detection capability has been replaced by the FIRE WATCH. WASTE HANDLING OPERATIONS can be continued with relatively low risk for the time needed to place WASTE in the disposal array, and move the affected piece of diesel powered waste handling equipment for automatic/manual fire suppression system repair/recharge. Completion of ACTION B.2 completes the requirements to exit this LCO.

SRs

SR 4.1.3.1 A VERIFICATION shall be made of the automatic fire suppression system on the selected diesel powered waste handling equipment to ensure that the system is operating properly as evidenced by no trouble indications on the control module and a test to ensure that the indicating lights are working properly. This VERIFICATION ensures that there are no indications that the detection portion of the automatic fire suppression system is impaired and that the compressed nitrogen gas cylinder has not discharged, thereby ensuring that the system is ready to operate in the event of equipment fire.

The 48 Hour FREQUENCY VERIFICATION of the automatic fire suppression system status on the selected waste handling equipment ensures that the detection capability of the system is not diminished and that the system indicates that no discharge or depressurization of the compressed nitrogen gas cylinder has occurred. VERIFICATION that there are no trouble indications on the system control module and that the status lights are working properly ensures that the system is charged and available in the event of a vehicle fire.

Failure to meet this requirement requires entry into Condition A.

SR 4.1.3.2 This SURVEILLANCE REQUIREMENT provides for a visual verification to confirm the fire suppressant powder has not discharged. While it will likely be obvious if an inadvertent discharge of the fire suppressant powder has occurred, the 12 Hour FREQUENCY VERIFICATION will document that the suppressant is available to be manually actuated to extinguish a fire associated with fuel leaks or the engine.

Failure to meet this requirement requires entry into Condition B.

SR 4.1.3.3 A semi-annual VERIFICATION of the components associated with the automatic fire suppression system on diesel powered waste handling equipment is performed to ensure that there has been no degradation of the system components including not only the detection portion of the system, but each component that must actuate to release the suppressant powder including the squib, the bursting disc on the pressurized gas cylinder, that the pressurized nitrogen gas cylinder is charged, and that there are no obstructions in the lines from the pressurized gas cylinder to the fire suppressant container or from the fire suppressant container to the distribution tubing/piping. This semi-annual VERIFICATION of system components is judged to be adequate based on the system status checks that are made on the equipment every 48 hours.

Failure to meet this SR requires entry into Condition A.

SR 4.1.3.4 A semi-annual test of the automatic fire suppression system is required to ensure that the system control module not only receives the signal from the detection portion of the system, but sends a signal to the squib such that it actuates to puncture the cap/seal on the compressed nitrogen gas cartridge.

The semi-annual FREQUENCY testing of this system is judged to be adequate based on the system status checks that are made on the system every 48 hours when the equipment is in service.

Failure to meet or perform this SR requires entry into Condition A

B3.2 Ventilation in the UNDERGROUND

Background Summary

Ventilation in the UNDERGROUND is required to operate diesel powered equipment for any activities including WASTE HANDLING. Because the disposal area at WIPP is in a mine with vertical shaft access, WIPP is required to meet 30CFR56/57/58 and Part 62, Federal Mine Safety and Health Regulations for Metal/Nonmetal Mines. Air quality and fire prevention are two specific areas that are heavily regulated by MSHA for worker protection. Ventilation is required by MSHA 57.8518 for operation of diesel powered equipment in an underground mine and to ensure an adequate minimum airflow to ensure diesel particulate emissions do not exceed specified limits. WIPP only uses diesel and electric powered equipment in the underground. Without ventilation, no operation of diesel equipment is allowed, hence, WASTE HANDLING OPERATIONS do not start or resume until ventilation is operating. Similarly any mining or ground control operations must have ventilation. Ventilation provides fresh air for worker evacuation in the event of a fire. In accordance with operating procedures, the automatic shift to filtration of the underground ventilation exhaust is blocked, based on fire conditions, by the CMR operator until personnel are out of danger.

As discussed in Chapter 2 of the CH DSA, underground ventilation is divided into four separate flow paths supporting the waste disposal area, the construction area, north area, and the waste shaft station. The waste disposal, construction and north areas receive their air supply from common sources, the air intake shaft and the salt handling shaft. The waste disposal area receives its supply air from the construction supply air. The waste shaft station receives its air supply from the waste shaft and an associated auxiliary air intake and is separated from the other three circuits by bulkheads and airlocks. All four air circuits combine near the exhaust shaft, which acts as the common discharge from the underground.

Different levels of ventilation can be established to support underground activities including:

1) Normal Ventilation in which two main exhaust fans operate to provide a nominal flow of 425,000 standard cubic feet per minute (scfm) unfiltered

2) Alternate Ventilation: One main exhaust fan operating to provide a nominal flow of 260,000 scfm unfiltered

3) Reduced Ventilation: Two filtration fans operating as ventilation fans to provide a nominal flow of 60,000 scfm each unfiltered

4) Minimum Ventilation: One filtration fan operating as a ventilation fan to provide a nominal flow of 60,000 scfm unfiltered

5) Maintenance Ventilation: Simultaneous operation of one or two main ventilation fans with one or two of the filtration fans in support of flow calibration and maintenance activities.

Under normal operating conditions, the ventilation system functions continuously. If the normal flow of 425,000 scfm is not available, underground operations may proceed, but the number of activities that can be performed in parallel may be limited depending on the quantity of air available. Approximately 140,000 ft^3 per minute actual is normally supplied to the disposal area and is adequate to supply three active rooms in a panel during operations

Approximately 35,000 scfm is required in each active room in a pane to support the personnel and diesel equipment expected to be operating in the area, and meets or exceeds the minimum air velocity of 60 feet per minute per disposal room as specified in the WIPP Mine Ventilation Plan.[8] Disposal rooms that are filled and isolated, or rooms that are not in use do not require a specific airflow.

Air is routed through the individual disposal rooms within a panel using underground bulkheads and air regulators. Ventilation is maintained only in active rooms within a disposal panel. Once a disposal room is filled, it is closed against entry and isolated from the mine ventilation system by constructing barricades at each end. Filled rooms are not ventilated. After all rooms within a panel are filled, the panel will be closed with a substantial concrete block wall. The ventilation path for the waste disposal circuit is separated from the construction side by means of bulkheads, overcasts, and airlocks.

Application to Safety

LCO 3.1.3 ensures the OPERABILITY of underground ventilation. With the underground ventilation system in operation, there is sufficient airflow to operate diesel powered waste handling equipment and any other diesel powered equipment. Additionally, in the event of a WASTE container breach, airflow is directed away from personnel in the UNDERGROUND towards the waste stack. Underground ventilation also provides fresh air for worker evacuation in the event of a fire. In accordance with operating procedures, the automatic shift to filtration of the underground ventilation exhaust is blocked, based on fire conditions, by the CMR operator until personnel are out of danger.

LCO

The underground ventilation system shall be OPERABLE for WASTE HANDLING OPERATIONS in the UNDERGROUND. An OPERABLE underground ventilation system consists of the following elements:

- A minimum of 42,000 actual cubic feet per minute in the ACTIVE DISPOSAL ROOM.
- A minimum of 12,000 actual cubic feet per minute in the waste shaft ventilation circuit as measured on the waste shaft side of regulator 74-B-308.

OPERABILITY is verified by performing daily preoperational verification of system status. See SRs and Bases for 4.1.4.1 and 4.1.4.2.

MODE Applicability

Ventilation is required is for WASTE HANDLING MODE in the UNDERGROUND. This ensures that there is sufficient airflow for operation of diesel powered waste handling equipment and that in the event of a WASTE container breach, airflow is directed away from workers and towards the disposal array.

PROCESS AREA Applicability

The PROCESS AREA includes the base of the waste shaft where the WASTE containers are transferred from the waste hoist conveyance to the diesel powered waste transporter, the transport path from the waste shaft to the ACTIVE DISPOSAL ROOM, and transfer of WASTE containers from the waste transporter to the disposal array using a diesel powered waste handling forklift. This LCO is applicable to the UNDERGROUND during WASTE HANDLING MODE.

ACTIONS

ACTION A.1

If the UNDERGROUND ventilation is INOPERABLE, the diesel powered waste handling equipment in the UNDERGROUND is required to be shut down until ventilation is re-verified. Since WASTE HANDLING MODE in the UNDERGROUND require the use of diesel powered waste handling equipment to remove WASTE from the waste shaft conveyance and for subsequent transport to and emplacement in the ACTIVE DISPOSAL ROOM, the lack of ventilation requires that the diesel powered waste handling equipment in the UNDERGROUND be secured until the required flows are re-verified. The ACTION requires that WASTE be placed in a safe condition, which may necessitate continued movement of suspended loads to put the WASTE in the safest condition. Loads suspended for emplacement may either be lowered or the emplacement completed, whichever takes the least amount of time. In the case of WASTE being transported on the waste shaft conveyance when ventilation is lost, the WASTE will either continue to the waste shaft station in the underground or be returned to the top of the shaft. The Completion Time of IMMEDIATELY is appropriate for this Required ACTION because without ventilation, the diesel emissions are not sufficiently diluted to provide fresh air to workers.

ACTION A.2

This ACTION requires airflows be verified in the ACTIVE DISPOSAL ROOM and in the waste shaft ventilation circuit prior to WASTE HANDLING OPERATIONS in the UNDERGROUND. VENTILATION CONFIGURATION changes may still meet the minimum required airflow in the ACTIVE DISPOSAL ROOM or in the waste shaft ventilation circuit. However, the flow must be verified prior to WASTE HANDLING OPERATIONS in the UNDERGROUND in order to determine if the conditions of the UNDERGROUND ventilation system OPERABILITY are satisfied. The flow is verified with calibrated hand held instrumentation (pitot-tube traverse or anemometer).

SRs

SR 4.2.1 VERIFICATION shall be made daily and after any change in VENTILATION CONFIGURATION to ensure that airflow provided by the UNDERGROUND ventilation system in the ACTIVE DISPOSAL ROOM is a minimum of 42,000 actual cubic feet per minute.

The Daily FREQUENCY has been determined to be appropriate as mining practices ensure that UNDERGROUND ventilation is operating at the beginning of each shift prior to the commencement of work. This ensures that there is sufficient directional airflow to operate the diesel powered waste handling equipment prior to entering WASTE HANDLING MODE in the UNDERGROUND. This further provides directional airflow so that in the event of a WASTE container breach, airflow is away from the worker towards the disposal array. It also provide sufficient airflow to facilitate worker evacuation from the UNDERGROUND in the event of a fire. Because the disposal ventilation circuit receives its airflow from the construction ventilation circuit, this VERIFICATION in the ACTIVE DISPOSAL ROOM ensures that there is at least that much airflow in the transport path.

VENTILATION CONFIGURATION changes may still meet the minimum required airflow in the ACTIVE DISPOSAL ROOM. However, the flow must be verified after any changes in VENTILATION CONFIGURATION in order to determine if the conditions of the UNDERGROUND ventilation system OPERABILITY are satisfied.

Failure to meet this requirement requires entry into Condition A.1.

SR 4.2.2

VERIFICATION shall be made daily and after any change in VENTILATION CONFIGURATION to ensure that airflow provided in the waste shaft ventilation circuit as measured on the waste shaft side of regulator 74-B-308 is a minimum of 12,000 actual cubic feet per minute.

The Daily FREQUENCY has been determined to be appropriate as mining practices ensure that underground ventilation is operating at the beginning of each shift prior to the commencement of work. This ensures that there is sufficient directional airflow to operate the diesel powered waste handling equipment prior to entering WASTE HANDLING MODE in the UNDERGROUND.

VENTILATION CONFIGURATION changes may still meet the minimum required airflow in the waste shaft ventilation circuit. However, the flow must be verified after any changes in VENTILATION CONFIGURATION in order to determine if the conditions of the UNDERGROUND ventilation system OPERABILITY are satisfied.

Because of the limited space available at the base of the waste shaft to operate additional equipment, a lower airflow than that required in the ACTIVE DISPOSAL ROOM is needed to support the waste transporter used to remove waste from the waste shaft conveyance. Further, a waste handling restriction prevents non-waste handling diesel powered equipment from being operated within 75 feet of the waste transporter during WASTE HANDLING MODE in the UNDERGROUND. This further ensures that the airflow is adequate to support operation of the waste transporter.

Failure to meet this requirement requires entry into Condition A.1.

References

1.0 Title 10 CFR Part 830, Subpart B, "*Safety Basis Requirements*."

2.0 DOE G 423.1-1, *Implementation Guide for use in Developing Technical Safety Requirements,* October 2001.

3.0 DOE Order O 420.1A, *Facility Safety*.

4.0 SDD-FP00, *Fire Protection System System Design Description.*

5.0 DOE/WIPP-95-2065, *WIPP Contact-Handled Transuranic Waste Documented Safety Analysis.*

6.0 NFPA 25, *Testing and Maintenance of Water Based Fire Protection Systems,* Standard for the Inspection.

7.0 BNFL Drawing 53-9840, Revision 8.

8.0 WIPP Mine Ventilation Plan, Attachment Q of Hazardous Waste Facility Permit No. NM48901390088-TSDF, issued by the New Mexico Environmental Department (as amended),

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