ATTACHMENT E

INSPECTION SCHEDULE, PROCESS AND FORMS

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ATTACHMENT E

INSPECTION SCHEDULE, PROCESS AND FORMS

TABLE OF CONTENTS

Introduction 1

E-1 Inspection Schedule 1
- E-1a General Inspection Requirements 3
  - E-1a(1) Types of Problems 3
  - E-1a(2) Frequency of Inspections 4
  - E-1a(3) Monitoring Systems 4
- E-1b Specific Process Inspection Requirements 4
  - E-1b(1) Container Inspection 4
  - E-1b(2) Miscellaneous Unit Inspection 6

References 6

LIST OF FIGURES

Figure	Title
Figure E-1	Typical Inspection Checklist
Figure E-2	Typical Logbook Entry

LIST OF TABLES

Table	Title
Table E-1	Inspection Schedule/Procedures
Table E-1a	RH TRU Mixed Waste Inspection Schedule/Procedures
Table E-2	Monitoring Schedule

ATTACHMENT E

INSPECTION SCHEDULE, PROCESS AND FORMS

Introduction

This Permit Attachment describes the facility inspections (including container inspections) that are conducted to detect malfunctions, deterioration, operator errors, and discharges that may cause or lead to releases of hazardous waste or hazardous waste constituents to the environment or that could be a threat to human health.

E-1 Inspection Schedule

Equipment instrumental in preventing, detecting, or responding to environmental or human health hazards, such as monitoring equipment, safety and emergency equipment, security devices, and operating or structural equipment are inspected. The equipment will be inspected for malfunctions, deterioration, potential for operator errors, and discharges which could lead to a release of hazardous waste constituents to the environment or pose a threat to human health.

The WIPP facility has developed and will maintain a series of written procedures that include all the detailed inspection procedures and forms necessary to comply with 20.4.1.500 NMAC (incorporating 40 CFR §264.15(b)), during the Disposal Phase. Tables E-1 and E-1a list each item or system requiring inspection under these regulations, the inspection frequency, the organization responsible for the inspection, the applicable inspection procedure, and what to look for during the inspection. 20.4.1.500 NMAC (incorporating 40 CFR §§264.15(b), 264.174, and 264.602) list requirements that are applicable to the WIPP facility.

Operational procedures detailing the inspections required under 20.4.1.500 NMAC (incorporating 40 CFR §§264.15(a) and (b)), are maintained in electronic format on the WIPP computer network, in the Operating Record and, as appropriate, in controlled document locations at the WIPP facility. Frequency of inspections is discussed in detail in Section E-1a(2). Inspections are conducted often enough to identify problems in time to correct them before they pose a threat to human health or the environment and are based on regulatory requirements. The operational procedures assign responsibility for conducting the inspection, the frequency of each inspection, the types of problems to be watched for, what to do if items fail inspection, directions on record keeping, and inspector signature, date, and time. The operational procedures are maintained at the WIPP facility. Tables E-1 and E-1a summarize inspections, frequencies, responsible organizations, personnel making the inspection (by job title), and the types of anticipated problems as well as the references for the operational procedures. Inspection records are maintained at the WIPP site for three years. Beginning with the effective date of this Permit, records that are over the three year retention period are either maintained at the WIPP site or transferred to the WIPP Records Archive located in Carlsbad, NM until closure. The records maintained at the WIPP Records Archive are stored in facilities that are temperature and humidity controlled especially for the long term storage of records and readily retrievable and available for inspection.

Waste handling equipment and area inspections are typically controlled through established procedures and the results are recorded in logbooks or on data sheets. Operators are trained to consult the logbook to identify the status of any piece of waste handling equipment prior to its

use. Once a piece of equipment is identified to be operable, a preoperational inspection is initiated in accordance with the appropriate inspection procedure in Tables E-1, E-1a, or in operational procedures. Inspection results as described below are entered in the applicable logbook.

Inspections include identifying malfunctions or deteriorating equipment and structures. Inspection results and data, including deficiencies, discrepancies, or needed repairs are recorded. A negative inspection result does not necessarily lead to a repair. A deficiency, such as low fluid level, may be corrected by the inspector immediately. A discrepancy, such as an increasing trend of a data point, may necessitate additional inspection prior to the next scheduled frequency. The actions taken (corrected, additional inspection, or Action Request (**AR**) for repair submitted) are recorded on the inspection form, the WIPP automated Maintenance Management tracking program (**CHAMPS**) work order sheet, or the equipment logbook, whichever is applicable.

Items that are operational with restrictions are tagged with those restrictions. Items that are not operational are tagged and locked to prevent their use. Tagged and locked items are listed on the Tagout/Lockout Index. Once a scheduled repair or replacement is accomplished in accordance with the work authorization procedures, the tag or lock is removed from the item in accordance with the equipment tagout/lockout procedures. Normally, the individual inspecting the equipment/system is not qualified to make repairs and consequently, prepares an AR if repairs are needed. The AR is tracked by the CHAMPS system through the work control process. When parts are received and work instructions are completed, the work order can be scheduled on the Plan of the Day (**POD**). The POD is held daily to ensure facility configuration can support scheduled work items and to allocate and coordinate the resources necessary to complete the items.

Work orders are released for work by the responsible organization. When repairs are complete the responsible organization tests the equipment to ensure the repairs corrected the problem, then closes out the work order, to return the equipment to an operational status for normal operations to resume. Implementation of these procedures constitutes compliance with 20.4.1.500 NMAC (incorporating 40 CFR §264.15(c)).

Requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.15(d)), are met by the inspections for each item or system included in Tables E-1 and E-1a. Beginning with the effective date of this Permit, the results of the inspections are maintained in the operating record for three years and are then transferred to the WIPP Records Archive where they are maintained until closure. The inspection logs or summary records include the date and time of inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions. Major pieces of waste handling equipment are inspected using proceduralized inspections. Current copies of inspection forms are maintained in the Operating Record. Non-administrative changes (i.e., changes that affect the frequency or content of inspections) to inspection forms must be submitted to the NMED in accordance with the appropriate portions of 20 NMAC 4.1.900 (incorporating 40 CFR §270.42). The status of these pieces of equipment is maintained in an equipment logbook that is separate from the checklist. The logbook contains information regarding the condition of the equipment. Equipment operators are required, by the inspection checklist, to consult the logbook as the first activity in the inspection procedure. This logbook is maintained in the operating record. CH transuranic (**TRU**) mixed waste equipment that is controlled by a logbook includes the waste handling forklifts, all waste handling cranes, the adjustable center of gravity lift fixture, the CH

TRU underground transporter, the facility transfer vehicle, the trailer jockey, and the push-pull attachment. RH TRU mixed waste equipment that is controlled by a logbook includes the 140/25-ton RH Bay overhead bridge crane, cask transfer cars, 25-ton cask unloading room crane, transfer cell shuttle car, RH Bay cask lifting yoke, facility grapple, 6.2- ton overhead hoist, facility cask rotating device, hot cell overhead powered manipulator, 15-ton hot cell crane, facility cask transfer car, 41-ton forklift, facility cask, and emplacement equipment. Inspections of the Cask Unloading Room, Hot Cell, Transfer Cell, Facility Cask Loading Room, RH Bay and radiation monitoring equipment will be recorded on data sheets. In addition to the inspections listed in Tables E-1 and E-1a, many pieces of equipment are subject to regular preventive maintenance. This includes more in-depth inspections of mechanical systems, load testing of lifting systems, calibration of measurement equipment and other actions as recommended by the equipment manufacturer or as required by DOE Orders. These preventive maintenance activities along with the inspections in Tables E-1 and E-1a make mechanical failure of waste handling equipment unlikely. The WIPP Safety Analysis Report (DOE, 1999) and the WIPP Remote-Handled Waste Preliminary Safety Analysis Report (RH PSAR) (DOE, 2000) contain the results of a systematic analysis of waste handling equipment and the hazards associated with potential mechanical failures. Equipment subject to failures that cannot practically be mitigated is retained for analysis and is the basis for contingency planning. The inspection procedures maintained in the Operating Record for operational and preventive maintenance are implemented to assure the equipment is maintained. An example equipment inspection checklist and a typical logbook form are shown as Figures E-1 and E-2. Actual checklists or forms are maintained within the Operating Record.

E-1a General Inspection Requirements

Tables E-1, E-1a, and E-2 of this Permit Attachment list the major categories of monitoring equipment, safety and emergency systems, security devices, and operating and structural equipment that are important to the prevention or detection of, or the response to, environmental or human health hazards caused by hazardous waste. These systems may include numerous subsystems. These systems are inspected according to the frequency listed in Tables E-1 and E-1a, a copy of which is maintained at the WIPP facility. The frequency of inspections is based on the nature of the equipment or the hazard and regulatory requirements. When in use, daily inspections are made of areas subject to spills, such as TRU mixed waste loading and unloading areas in the WHB Unit, looking for deterioration in structures, mechanical items, floor coatings, equipment, malfunctions, etc., in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.15(b)(4)).

As required in 20.4.1.500 NMAC (incorporating 40 CFR §264.33), the WIPP facility inspection procedures for communication and alarm systems, fire-protection equipment, and spill control and decontamination equipment include provisions for testing and maintenance to ensure that the equipment will be operable in an emergency.

E-1a(1) Types of Problems

The inspections for the systems, equipment, structures, etc., listed in Tables E-1 and E-1a, include the types of problems (e.g., malfunctions, visible cracks in coatings or welds, and deterioration) to be looked for during the inspection of each item or system, if applicable, and are in compliance with 20.4.1.500 NMAC (incorporating 40 CFR §264.15(b)(3)).

E-1a(2) Frequency of Inspections

Tables E-1, E-1a, and E-2 of this Permit Attachment list the inspection frequencies and monitoring schedule for equipment and systems subject to the 20.4.1 NMAC hazardous waste management requirements. The frequency is based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction, or any operator error, goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, are inspected daily when in use, consistent with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.15(b)(4)).

When RH TRU mixed waste is present in the RH Complex, inspections are conducted visually and/or using closed-circuit video cameras in order to manage worker dose and to minimize occupational radiation exposures to as low as reasonably achievable (**ALARA**). More extensive inspections of these areas are performed at least annually during routine maintenance periods and when RH TRU mixed waste is not present.

E-1a(3) Monitoring Systems

There are two monitoring systems used at the WIPP to provide assurance that facility systems are operating correctly, that areas can be used safely, and that there have been no releases of hazardous waste constituents. These systems are shown in Table E-2 and include the geomechanical monitoring system and the central monitoring system (**CMS**). The geomechanical monitoring system is used to assess the condition of mined excavations to assure no unsafe conditions are allowed to develop. The CMS continuously assesses the status of the fixed radiation monitoring equipment, electrical power, fire alarm systems, ventilation system, and other facility systems including water tank levels. In addition, the CMS collects data from the meteorological monitoring system.

E-1b Specific Process Inspection Requirements

20.4.1.500 NMAC (incorporating 40 CFR §264.15(b)(4)), requires inspections of specific portions of a facility, rather than the general facility. These include container storage areas and miscellaneous units. Both are addressed below.

E-1b(1) Container Inspection

Containers are used to manage TRU mixed waste at the WIPP facility. These containers are described in Permit Part 3. Off-site waste that will be managed and stored as CH TRU mixed waste will arrive in 55-gallon drums arranged as seven (7)-packs, in Ten Drum Overpacks (**TDOP**), in 85-gallon drums arranged as four (4) packs, in 100-gallon drums arranged as three (3) packs, in standard waste boxes (**SWB**), in standard large box 2s (**SLB2s**) or shielded containers as (3)-packs. The waste containers will be visually inspected to ensure that the waste containers are in good condition and that there are no signs that a release has occurred. This visual inspection shall not include the center drums of 7-packs and waste containers positioned such that visual observation is precluded due to the arrangement of waste assemblies on the facility pallets. If CH TRU mixed waste handling operations should stop for any reason with containers located on the TRUPACT-II Unloading Dock (**TRUDOCK** storage area of the WHB Unit) or in room 108 while still in the Contact-Handled Packages, primary waste container inspections could not be accomplished until the containers of waste are removed from the shipping containers.

As described in Permit Attachment A1, Section A1-1d(3), off-site waste that will be managed and stored as RH TRU mixed waste will arrive in containers inside Nuclear Regulatory Commission (**NRC**)-certified casks designed to provide shielding and facilitate safe handling. Canisters, will be loaded singly into an RH-TRU 72-B cask. Drums will be loaded into a CNS 10-160B cask. The cask will be visually inspected upon arrival. Because RH TRU mixed waste is stored in the Parking Area Unit in sealed casks, there are no additional requirements for engineered secondary containment systems. Following removal of the canisters and drums, the interior of the cask will be inspected and surveyed for evidence of contamination that may have occurred during transport.

Off-site waste that will be managed and stored as RH TRU mixed waste is managed and stored in the RH Complex of the WHB. The RH Complex includes the following: RH Bay, the Cask Unloading Room, the Hot Cell, the Transfer Cell, and the Facility Cask Loading Room. As RH TRU mixed waste is held in canisters within a canister rack the physical inspection of the drum or canister is not possible. Inspections of RH TRU mixed waste in these areas occurs remotely via closed-circuit cameras a minimum of once weekly when stored waste is present. Because RH TRU mixed waste is in sealed casks, there are no additional requirements for engineered secondary containment systems. However, the floors in the RH Complex (including the RH Bay, Facility Cask Loading Room and Cask Unloading Room) are coated concrete and during normal operations (i.e., when waste is present), the floor of the RH Complex is inspected visually or by using close-circuit cameras on a weekly basis to verify that it is in good condition and free of visible cracks and gaps.

Inspections of RH TRU mixed waste containers stored in the Hot Cell and Transfer Cell are conducted using remotely operated cameras. RH TRU mixed waste in the Hot Cell is stored in either drums or canisters. The containers in the Hot Cell are inspected to ensure that they are in acceptable condition. RH TRU mixed waste in the Transfer Cell is stored in the RH-TRU 72-B cask or shielded insert; therefore, inspections in this area focus on the integrity of the cask or shielded insert. RH TRU mixed waste in the Facility Cask Loading Room is stored in the facility cask; therefore, inspections in this area focus on the integrity of the facility cask.

Inspections will be conducted in the Parking Area Unit at a frequency not less than once weekly when waste is present. These inspections are applicable to loaded Contact- Handled and Remote-Handled Packages. The perimeter fence located at the lateral limit of the Parking Area Unit, coupled with personnel access restrictions into the WHB Unit, will provide the needed security. The perimeter fence and the southern border of the WHB shall mark the lateral limit of the Parking Area Unit. Radiologically controlled areas can be established temporarily with barricades. More permanent structures can be installed. The western boundary can be established with temporary barricades since this area is within the perimeter fence. Access to radiologically controlled areas will only be permitted to personnel who have completed General Employee Radiological Training (**GERT**), a program defined by the Permittees, or escorted by personnel who have completed GERT. This program ensures that personnel have adequate knowledge to understand radiological posting they may encounter at the WIPP site. The fence of the Radiologically Controlled Area, south from the WHB airlocks, was moved to provide more maneuvering space for the trucks delivering waste. Since TRU mixed waste to be stored in the Parking Area Unit will be in sealed Contact-Handled or Remote-Handled Packages, there will be no additional requirements for engineered secondary containment systems. Inspections of the Contact-Handled and Remote-Handled Packages stored in the Parking Area Unit shall be conducted at a frequency no less than once weekly and will focus on the inventory and integrity

of the shipping containers and the spacing between trailers carrying the Contact-Handled or Remote-Handled Packages. This spacing will be maintained at a minimum of four feet.

Container inspections will be included as part of the surface TRU mixed waste handling areas (i.e. Parking Area Unit and WHB Unit) inspections described in Tables E-1 and E-1a. These inspections will also include the Derived Waste Storage Areas of the WHB Unit. The Derived Waste Storage Areas will consist of containers of 55 or 85-gallon drums or SWBs for CH TRU mixed waste and 55-gallon drums for RH TRU mixed waste. A Satellite accumulation area (**SAA**) may be required in an area adjacent to the TRUDOCKs for CH TRU mixed waste. A SAA may also be required in the RH Bay and Hot Cell for RH TRU mixed waste. These SAAs will be set up on an as needed basis at or near the point of generation and the derived waste will be discarded into the active derived waste container. All SAAs will be inspected in accordance with 20.4.1.300 NMAC (incorporating 40 CFR §262.34).

E-1b(2) Miscellaneous Unit Inspection

20.4.1.500 NMAC (incorporating 40 CFR §264.602), requires that inspections required in 20.4.1.500 NMAC (incorporating 40 CFR §264.15 and §264.33), as well as any additional requirements needed to protect human health and the environment, be met. The requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.15 and §264.33) are discussed in Section E-1 of this Permit Attachment, along with how the WIPP facility complies with those requirements for standard types of inspections. Inspection frequencies for geomechanical monitoring equipment are provided in Table E-1. The monitoring schedule for geomechanical instrumentation is given in Table E-2.

References

DOE, 1999. “WIPP Safety Analysis Report,” DOE/WIPP-95-2065. Rev. 4, U.S. Department of Energy. Washington, D.C.

DOE, 2000. “WIPP Remote-Handled Waste Preliminary Safety Analysis” (RH PSAR), U.S. Department of Energy. Washington, D.C.

FIGURES

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TYPICAL EQUIPMENT
WEEKLY CHECK LIST

_√_ OK **_X_ Adjustment Made** **_O_ Repairs Required**

AR Written [ ] Yes [ ] No AR # _____

(check or complete appropriate information)

ITEM INSPECTED	Condition	Comments/Corrective Action
Mechanical Checks: (examples)		
Oil level		
Radiator fluid level		
Automatic transmission fluid level		
Operate all valves/check gauges		
Emergency brake		
Fuel level (> ¾ full)		
Oil pressure (at warm idle)		
Tire Pressure		
Sirens, horn, & back-up alarm		
Deterioration Checks: (examples)		
Fan belts		
Battery (terminals, cables)		
Run generator 5 min.		
Hose, nozzles & valves		
Leaks/Spills Checks: (examples)		
Leaks around pump		
Foam tank level		
Required Equipment: (examples)		
Inspect SCBAs (> 4050 psi)		
Hand tools & equipment		
Trauma Kit		

Inspected by: _____
Print Name Signature Time/Date

Inspected by: _____
Print Name Signature Time/Date

Reviewed by: _____
Print Name Signature Time/Date

Comments: _____
_____
_____

NOTE: All items that are mandatory for every inspection form are shown in bold.

Figure E-1
Typical Inspection Checklist

HOUR METER READING _____ EQUIPMENT NO. _____

DEFICIENCIES NOTED: _____

_____

_____

_____

_____

PRE OPS COMPLETED PER __{Procedure Number}__ SAT _____ **PROBLEMS NOTED** _____

CORRECTIVE ACTIONS TAKEN: _____

_____

_____

_____

_____

_____

_____

OPERATOR SIGNATURE	**DATE**	**TIME**	**SUPERVISOR SIGNATURE/DATE**
_____	_____	_____	_____

NOTE: All items that are mandatory for every inspection form are shown in bold.

Figure E-2
Typical Logbook Entry

1

TABLES

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Table E-1
Inspection Schedule/Procedures

System/Equipment Name	Responsible Organization	Inspection a Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Air Intake Shaft Hoist	Underground Operations	Preoperational [c] See Lists 1b and c	WP 04-HO1004 Inspecting for Deterioration[b], Safety Equipment, Communication Systems, and Mechanical Operability[m] in accordance with Mine Safety and Health Administration (MSHA) requirements
Ambulances (Surface and Underground) and related emergency supplies and equipment	Emergency Services	Weekly See List 11	12-FP0030 Inspecting for Mechanical Operability[m], Deterioration[b], and Required Equipment[n]
Adjustable Center of Gravity Lift Fixture	Waste Handling	Preoperational See List 8	WP 05-WH1410 Inspecting for Mechanical Operability[m] and Deterioration[b]
Backup Power Supply Diesel Generators	Facility Operations	Monthly See List 3	WP 04-ED1301 Inspecting for Mechanical Operability[m] and Leaks/Spills by starting and operating both generators. Results of this inspection are logged in accordance with WP 04-AD3008.
Facility Inspections (Water Diversion Berms)	Facility Engineering	Annually See List 4	WP 10-WC3008 Inspecting for Damage, Impediments to water flow, and Deterioration[b]
Central Monitoring Systems (CMS)	Facility Operations	Continuous See List 3	Automatic Self-Checking
Contact-Handled (CH) TRU Underground Transporter	Waste Handling	Preoperational See List 8	WP 05-WH1603 Inspecting for Mechanical Operability[m], Deterioration[b], and area around transporter clear of obstacles
Conveyance Loading Car	Waste Handling	Preoperational See List 8	WP 05-WH1406 Inspecting for Mechanical Operability[m], Deterioration[b], path clear of obstacles, and guards in the proper place
Facility Transfer Vehicle	Waste Handling	Preoperational See List 8	WP 05-WH1204 Inspecting for Mechanical Operability[m], Deterioration[b], path clear of obstacles, and guards in the proper place

System/Equipment Name	Responsible Organization	Inspection a Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Exhaust Shaft	Underground Operations	Quarterly See List 1a	PM041099 Inspecting for Deterioration[b] and Leaks/Spills
Eye Wash and Shower Equipment	Equipment Custodian	Weekly See List 5	WP 12-IS1832 Inspecting for Deterioration[b]
		Semi-annually See List 2a	WP 12-IS1832 Inspecting for Deterioration[b] and Fluid Levels–Replace as Required
Fire Detection and Alarm System	Emergency Services	Semiannually See List 11	12-FP0027 Inspecting for Deterioration[b], Operability of indicator lights and, underground fuel station dry chemical suppression system. Inspection is per NFPA 17
Fire Extinguishers[j]	Emergency Services	Monthly See List 11	12-FP0036 Inspecting for Deterioration[b], Leaks/Spills, Expiration, seals, fullness, and pressure
Fire Hoses	Emergency Services	Annually (minimum) See List 11	12-FP0031Inspecting for Deterioration[b] and Leaks/Spills
Fire Hydrants	Emergency Services	Semi-annual/ annually See List 11	12-FP0034 Inspecting for Deterioration[b] and Leaks/Spills
Fire Pumps	Emergency Services	Weekly/annually See List 11	WP 12-FP0026 Inspecting for Deterioration[b], Leaks/Spills, valves, and panel lights
Fire Sprinkler Systems	Emergency Services	Monthly/ quarterly See List 11	WP 12-FP0025 Inspecting for Deterioration[b], Leaks/Spills, static pressures, and removable strainers
Fire and Emergency Response Trucks (Seagrave Fire Apparatus, Emergency One Apparatus, and Underground Rescue Truck)	Emergency Services	Weekly See List 11	12-FP0033 Inspecting for Mechanical Operability[m], Deterioration[b], Leaks/Spills, and Required Equipment[n]
Forklifts Used for Waste Handling (Electric and Diesel forklifts, Push-Pull Attachment)	Waste Handling	Preoperational See List 8	WP 05-WH1201, WP 05-WH1207, WP 05-WH1401, WP 05-WH1402, WP 05-WH1403, and WP 05-WH1412 Inspecting for Mechanical Operability[m], Deterioration[b], and On board fire suppression system

System/Equipment Name	Responsible Organization	Inspection a Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Hazardous Material Response Equipment	Emergency Services	Weekly See List 11	12-FP0033Inspecting for Mechanical Operability[m], Deterioration[b], and Required Equipment[n]
Miners First Aid Station	Emergency Services	Quarterly See List 11	12-FP0035Inspecting for Required Equipment[n]
Mine Pager Phones (between surface and underground)	Facility Operations	Monthly See List 3	WP 04-PC3017 Testing of PA and Underground Alarms and Mine Page Phones at essential locations
MSHA Air Quality Monitor	Maintenance/ Underground Operations	Daily[l] See Lists 1 and 10	WP 12-IH1828 Inspecting for Air Quality Monitoring Equipment Functional Check
Perimeter Fence, Gates, Signs	Security	Daily See List 6	PF0-010 Inspecting for Deterioration[b] and Posted Warnings
Personal Protective Equipment (not otherwise contained in emergency vehicles or issued to individuals): —Self-Contained Breathing Apparatus	Emergency Services	Weekly See List 11	12-FP0029Inspecting for Deterioration[b] and Pressure
Public Address (and Intercom System)	Facility Operations	Monthly See List 3	WP 04-PC3017 Testing of PA and Underground Alarms and Mine Page Phones at essential locations Systems operated in test mode
Radio Equipment	Facility Operations	Daily[i] See List 3	Radios are operated daily and are repaired upon failure
Rescue Truck (Surface and Underground)	Emergency Services	Weekly See List 11	12-FP0030 and 12-FP0033 Inspecting for Mechanical Operability[m], Deterioration[b], Leaks/Spills, and Required Equipment[n]
Salt Handling Shaft Hoist	Underground Operations	Preoperational See List 1b and c	WP 04-HO1002 Inspecting for Deterioration[b], Safety Equipment, Communication Systems, and Mechanical Operability[m] in accordance with MSHA requirements

System/Equipment Name	Responsible Organization	Inspection a Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Self-Rescuers	Underground Operations	Quarterly See List 1c	WP 04-AU1026 Inspecting for Deterioration[b] and Functionality in accordance with MSHA requirements
Surface TRU Mixed Waste Handling Area[k]	Waste Handling	Preoperational or Weekly[e] See List 8	WP 05-WH1101 Inspecting for Deterioration[b], Leaks/Spills, Required Aisle Space, Posted Warnings, Communication Systems, Container Condition, and Floor coating integrity
TRU Mixed Waste Decontamination Equipment	Waste Handling	Annually See List 8	WP 05-WH1101 Inspecting for Required Equipment[n]
Underground Openings—Roof Bolts and Travelways	Underground Operations	Weekly See List 1a	WP 04-AU1007 Inspecting for Deterioration[b]
Underground— Geomechanical Instrumentation System (GIS)	Geotechnical Engineering	Monthly See List 9	WP 07-EU1301 Inspecting for Deterioration[b]
Underground TRU Mixed Waste Disposal Area	Waste Handling	Preoperational See List 8	WP 05-WH1810 Inspecting for Deterioration[b], Leaks/Spills, mine pager phones, equipment, unobstructed access, signs, debris, and ventilation
Uninterruptible Power Supply (Central UPS)	Facility Operations	Daily See List 3	WP 04-ED1542 Inspecting for Mechanical Operability[m] and Deterioration[b] with no malfunction alarms. Results of this inspection are logged in accordance with WP 04-AD3008.
TDOP Upender	Waste Handling	Preoperational See List 8	WP 05-WH1010 Inspecting for Mechanical Operability[m] and Deterioration[b]
Vehicle Siren	Emergency Services	Weekly See List 11	Functional Test included with inspection of the Ambulances, Fire Trucks, and Rescue Trucks
Ventilation Exhaust	Maintenance Operations	Quarterly See List 10	IC041098 Check for Deterioration[b] and Calibration of Mine Ventilation Rate Monitoring Equipment

System/Equipment Name	Responsible Organization	Inspection a Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Waste Handling Cranes	Waste Handling	Preoperational See List 8	WP 05-WH1407 Inspecting for Mechanical Operability[m], Deterioration[b], and Leaks/Spills
Waste Hoist	Underground Operations	Preoperational See List 1b and c	WP 04-HO1003 Inspecting for Deterioration[b], Safety Equipment, Communication Systems, and Mechanical Operability[m], Leaks/Spills, in accordance with MSHA requirements
Water Tank Level	Facility Operations	Daily See List 3	SDD-WD00 Inspecting for Deterioration[b], and water levels. Results of this inspection are logged in accordance with WP 04-AD3008.
Push-Pull Attachment	Waste Handling	Preoperational See List 8	WP 05-WH1401 Inspecting for Damage and Deterioration[b]
Trailer Jockey	Waste Handling	Preoperational See List 8	WP 05-WH1405 Inspecting for Mechanical Operability[m] and Deterioration[b]
Explosion-Isolation Walls	Underground Operations	Quarterly See List 1	Integrity and Deterioration[b] of Accessible Areas
Bulkhead in Filled Panels	Underground Operations	Monthly See List 1	Integrity and Deterioration[b] of Accessible Areas
Bolting Robot	Waste Handling	Preoperational See List 8	WP 05-WH1203 Mechanical Operability[m]
Yard Transfer Vehicle	Waste Handling	Preoperational See List 8	WP 05-WH1205 Mechanical Operability[m], Deterioration[b], Path clear of obstacles and Guards in proper place
Payload Transfer Station	Waste Handling	Preoperational See List 8	WP 05-WH1208 Mechanical Operability[m], Deterioration[b], and Guards in proper place
Monorail Hoist	Waste Handling	Preoperational See List 8	WP 05-WH1202 Mechanical Operability[m], Deterioration[b], and leaks/spills

System/Equipment Name	Responsible Organization	Inspection a Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Bolting Station	Waste Handling	Preoperational See List 8	WP 05-WH1203 Mechanical Operability[m], Deterioration[b], and Guards in proper place

Table E-1 (Continued)
Inspection Schedule/Procedures Lists

List 1: Underground Operations

a. Mining Technician *
   Senior Mining Technician *
   Continuous Mining Specialist *
   Senior Mining Specialist *
   Mine OPS Supervisor *
b. Waste Hoist Operator
   Waste Hoist Shaft Tender
c. U/G Facility Operations* - Self Rescuers
   Shaft Technician *
d. Operations Engineer
   Supervisor U/G Services*
   Senior Operations Engineer*

List 2: Industrial Safety

a. Safety Technician *
   Senior Safety Technician *
   Safety Specialist *
   Safety Engineer *
   Industrial Hygienist *
b. Fire Protection Engineering *

List 3: Facility Operations

Facilities Technician *
Senior Facilities Technician *
Facility Operations Specialist *
Central Monitoring Room Operator *
Central Monitoring Room Specialist *
Operations Engineer
Senior Operations Engineer *
Facility Shift Manager
Operations Technical Coordinator *

List 4: Facility Engineering

Senior Engineer *

List 5: General

Equipment Custodian*

List 6: Security

Security Protective *
Security Protective Supervisor *

List 8: Waste Handling

Manager, Waste Operations
TRU-Waste Handler

List 9: Geotechnical Engineering

Engineer Technician *
Associate Engineer *
Engineer *
Senior Engineer *
Principal Engineer*

List 10: Maintenance Operations

Maintenance Technician *
Maintenance Specialist *
Senior Maintenance Specialist *
Contractor *

List 11: Emergency Services

Qualified Emergency Services Personnel
Fire Protection Technician

Table E-1 (Continued)
Inspection Schedule/Procedures Notes

[a] Inspection may be accomplished as part of or in addition to regularly scheduled preventive maintenance inspections for each item or system. Certain structural systems of the WHB, Waste Hoist and Station A are also subject to inspection following severe natural events including earthquakes, tornados, and severe storms. Structural systems include columns, beams, girders, anchor bolts and concrete walls.

[b] Deterioration includes: obvious visible cracks, erosion, salt build-up, damage, corrosion, loose or missing parts, malfunctions, and structural deterioration.

[c] "Preoperational" signifies that inspections are required prior to the first use during a calendar day. For calendar days in which the equipment is not in use, no inspections are required. For an area this includes: area is clean and free of obstructions (for emergency equipment); adequate aisle space; emergency and communications equipment is readily available, properly located and sign-posted, visible, and operational. For equipment, this includes: checking fluid levels, pressures, valve and switch positions, battery charge levels, pressures, general cleanliness, and that all functional components and emergency equipment is present and operational.

[e] These weekly inspections apply to container storage areas when containers of waste are present for a week or more.

[g] In addition, the water tank levels are maintained by the CMR and level readouts are available at any time.

[h] This organization is responsible for obtaining licenses for radios and frequency assignments. They do periodic checks of frequencies and handle repairs which are performed by a vendor.

[i] Radios are not routinely "inspected." They are operated daily and many are used in day-to-day operations. They are used until they fail, at which time they are replaced and repaired. Radios are used routinely by Emergency Services, Security, Environmental Monitoring, and Facility Operations.

[j] Fire extinguisher inspection is paperless. Information is recorded into a database using barcodes. The database is then printed out.

[k] Surface CH TRU mixed waste handling areas include the Parking Area Unit, the WHB unit, and unloading areas.

[l] No log forms are used for daily readings. However, readings that are out of tolerance are reported to the CMR and logged by CMR operator. Inspection includes daily functional checks of portable equipment.

[m] Mechanical Operability means that the equipment has been checked and is operating in accordance with site safety requirements (e.g. proper fluid levels and tire pressure; functioning lights, alarms, sirens, and power/battery units; and belts, cables, nuts/bolts, and gears in good condition), as appropriate.

[n] Required Equipment means that the equipment identified in Table D-6 is available and usable (i.e. not expired/depleted and works as designed).

* Positions are not considered RCRA positions (i.e., personnel do not manage TRU mixed waste).

Table E-1a
RH TRU Mixed Waste Inspection Schedule/Procedures

System/ Equipment Name	Responsible Organization [J]	Inspection [a] Frequency and Job Title of Personnel Normally Making Inspection [J]	Procedure Number (Latest Revision)	Inspection Criteria		
				Deterioration[b]	Leaks/ spills	Other
Cask Transfer Car(s)	Waste Operations	Pre-evolution [c,d,e] See List 1	WP05-WH1701 PM041187 (Semi-Annual)	Yes	NA	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication
RH Bay Overhead Bridge Crane	Waste Operations	Preoperational [c,d,e,i] See List 1	WP05-WH1741 PM041232 (Quarterly) PM041117 (Annual)	Yes	Yes	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication
Facility Cask	Waste Operations	Pre-evolution [c,d,e,f] See List 1	WP05-WH1713 PM041201 (Annual) PM041203 (Annual)	Yes	NA	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical PM.
RH Bay Cask Lifting Yoke	Waste Operations	Preoperational [c,d,e,i] See List 1	WP05-WH1741 PM041169 (Annual)	Yes	NA	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication
Facility Cask Transfer Car	Waste Operations	Pre-evolution [c,d,e,f] See List 1	WP05-WH1704 PM041186 (Quarterly) PM041195 (Annual)	Yes	Yes	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication Electrical Inspection
Facility Cask Rotating Device	Waste Operations	Pre-evolution [c,d,e,f] See List 1	WP05-WH1713 PM041175 (Annual) PM041176 (Annual)	Yes	Yes	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication Electrical Inspection
Facility Grapple	Waste Operations	Pre-evolution [c,d,e,f] See List 1	WP05-WH1721 PM041172 (Quarterly) PM041177 (Annual)	Yes	NA	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear. Non-Destructive Examination
6.25-Ton Grapple Hoist	Waste Operations	Pre-evolution [c,d,e,f] See List 1	WP05-WH1721 PM041173 (Annual)	Yes	Yes	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication
Transfer Cell Shuttle Car	Waste Operations	Pre-evolution [c,d,e,f] See List 1	WP05-WH1705 PM041184 (Semi-Annual) PM041222 (Annual)	Yes	Yes	Pre-evolution Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical Inspection.

System/ Equipment Name	Responsible Organization [J]	Inspection [a] Frequency and Job Title of Personnel Normally Making Inspection [J]	Procedure Number (Latest Revision)	Inspection Criteria		
				Deterioration[b]	Leaks/ spills	Other
Cask Unloading Room	Waste Operations	Preoperational [c,d,e,f,h,i] See List 1	WP05-WH1744	Yes	NA	Floor integrity
Hot Cell	Waste Operations	Preoperational [c,d,e,f,g,h,i] See List 1	WP05-WH1744	Yes	NA	Floor integrity
Hot Cell Overhead Powered Manipulator	Waste Operations	Preoperational [c,d,e,i] See List 1	WP05-WH1743 PM041215 (Annual) PM041216 (Annual) IC411037 (Annual)	Yes	Yes	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical Inspection. Load Cell Calibration
Hot Cell Bridge Crane	Waste Operations	Preoperational [c,d,e,i] See List 1	WP05-WH1742 PM041217 (Annual) PM041209 (Annual) IC411038 (Annual)	Yes	Yes	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical Inspection. Load Cell Calibration.
Transfer Cell	Waste Operations	Preoperational [c,d,e,f,h,i] See List 1	WP05-WH1744	Yes	NA	Floor integrity
Facility Cask Loading Room	Waste Operations	Preoperational [c,d,e,f,h,i] See List 1	WP05-WH1744	Yes	NA	Floor integrity
Closed Circuit Television Camera	Waste Operations	Preoperational [c,i] See List 1	WP05-WH1757	NA	NA	Operability
Radiation Monitoring Equipment	Radiation Control	Preoperational [c,d,e] See List 2	WP12-HP1245 IC240010 WP12-HP1307 IC240007 WP12-HP1314 (Annual)	Yes	NA	Operability Checks, Functional Checks, Instrument calibrations, Flow Calibration, Efficiency Checks.
Cask Unloading Room Crane	Waste Operations	Preoperational [c,d,e,i] See List 1	WP05-WH1719 PM041190 (Quarterly) PM041191 (Annual) PM041192 (Annual) IC411035 (Annual)	Yes	Yes	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical Inspection. Load Cell Calibration.

System/ Equipment Name	Responsible Organization [J]	Inspection [a] Frequency and Job Title of Personnel Normally Making Inspection [J]	Procedure Number (Latest Revision)	Inspection Criteria		
				Deterioration[b]	Leaks/ spills	Other
Horizontal Emplacement and Retrieval Equipment or functionally equivalent equipment	Waste Operations	Pre-evolution [c,d,e,f] See List 1	WP05-WH1700 PM052010 (Semi-Annual)[k] PM052011 (Annual) PM052013 PM052012 PM052014 (Annual)	Yes	Yes	Assembly and Operating Instructions. Electrical Inspection. Position Transducer Calibration. Tilt Sensor Calibration.
41-Ton Forklift	Waste Operations	Preoperational [c,d,e,i] See List 1	WP05-WH1602 PM074061 PM052003 (Hours of Use) PM074027 (Quarterly) PM074029 & PM074051 (Annual)	Yes	Yes	Pre-Operational Checks. PM performed every 100 hours of operation, every 500 hours of operation or every 5 Years. Quarterly Engine Emission Test. Annual Electrical Inspection. Annual NDE.
RH Bay	Waste Operations	Preoperational [c,d,e,h,i] See List 1	WP05-WH1744	Yes	NA	Floor integrity
Surface RH TRU Mixed Waste Handling Area	Waste Operations	Preoperational [i] See List 1	WP- 05 WH1744	Yes	Yes	Posted Warning, Communications

Table E-1a (Continued)
RH TRU Mixed Waste Inspection Schedule/Procedures Lists

List 1: Waste Operations

RH Waste Handling Engineer

Qualified TRU-Waste Handler

List 2: Radiological Control

Radiological Control Technician

Table E-1a (Continued)
RH TRU Mixed Waste Inspection Schedule/Procedures Notes

[a] Inspection may be accomplished as part of or in addition to regularly scheduled preventive maintenance inspections for each item or system. Certain structural systems of the WHB are also subject to inspection following severe natural events including earthquakes, tornados, and severe storms. Structural systems include columns, beams, girders, anchor bolts, and concrete walls.

[b] Deterioration includes: visible cracks, erosion, salt build-up, damage, corrosion, loose or missing parts, malfunctions, and structural deterioration.

[c] "Pre-evolution" signifies that inspections are required prior to equipment use in the waste handling process. (An evolution is considered to be from the receipt of a cask into the RH Bay through canister emplacement in the underground.) For an area, preoperational inspection includes: area is clean and free of obstructions (for emergency equipment); adequate aisle space; emergency and communications equipment is readily available, properly located and sign-posted, visible, and operational. For equipment, this includes: checking fluid levels, pressures, valve and switch positions, battery charge levels, pressures, general cleanliness, and that functional components and emergency equipment are present and operational. When the equipment is not in use, no inspections are required.

[d] When equipment needs to be inspected while handling waste (i.e., during waste unloading or transfer operations), general cleanliness and functional components will be inspected to detect any problem that may harm human health or the environment. The inspection will verify that emergency equipment is present.

[e] Inspection of RH TRU mixed waste equipment and areas in the RH Complex applies only after RH TRU mixed waste receipt begins.

[f] The inspection/maintenance activities associated with these pieces of equipment are performed when the RH Complex is empty of RH TRU mixed waste. If contamination is present, a radiation work permit may be needed.

[g] For the Hot Cell and Transfer Cell, if RH TRU mixed waste is present, camera inspections will be performed in lieu of physical inspection.

[h] The integrity of the floor coating will be inspected weekly if RH TRU mixed waste is present.

[i] "Preoperational" signifies that inspections are required prior to the first use in a calendar day.

[J] Responsible organizations refers to the organization that owns the equipment. Preventive Maintenance (PM) procedures are conducted by either mine maintenance or surface operations maintenance personnel and Instrument Calibration (IC) procedures are conducted by instrument and calibration maintenance personnel.

[k] Inspection will be performed after 250 evolutions (actual and training emplacements), if such usage occurs prior to the semi-annual inspection.

Table E-2
Monitoring Schedule

System/Equipment Name	Responsible Organization	Monitoring Frequency	Purpose
Geomechanical [b]	Geotechnical Engineering	Monthly	To evaluate the geotechnical performance of the underground facility and to detect ground conditions that could affect operational safety
Central Monitoring System	Facility Operations	System Dependent	Monitor and provide status for the following facility parameters: Electrical Power Status [d] Fire Alarm System [e] Ventilation System Status [f] Meteorological Data System [g] Facility Systems (compressors [g], pumps [h], water tank levels [i], waste hoists [j])

[b] Equipment is listed as Underground-Geomechanical Instrumentation System (GIS) in Table E-1.
[d] Equipment listed as Backup Power Supply Diesel Generator in Table E-1.
[e] Equipment listed as Fire Detection and Alarm System in Table E-1.
[f] Equipment listed as Ventilation Exhaust in Table E-1.
[g] Not RCRA equipment.
[h] Equipment listed as Fire Pumps in Table E-1.
[i] Equipment listed as Water Tank Level in Table E-1.
[j] Equipment listed as Waste Hoist in Table E-1.