Umatilla Chemical Agent Disposal Facility

# ATTACHMENT 6

# SECURITY, PREPAREDNESS, AND PREVENTION PROCEDURES, EQUIPMENT, AND REQUIREMENTS AND WASTE AND PRECIPITATION RELEASE RESPONSE PROCEDURES

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# FIGURES AND TABLES

# Security Procedures

## 1. SECURITY

[40 CFR 264.14, 270.32; OAR 340-104-0001]

The permittee shall comply with the security procedures set forth under 40 CFR §264.14(b) and (c) and as described in this attachment, except as allowed by 40 CFR §264.14(a) and the Closure Plan (Permit Attachment 8).

In addition to the security procedures in effect at the UMCDF, the UMCD provides overall security. The unclassified portions of the various security systems are discussed below; all systems are in full effect during chemical demilitarization operations. The location of fencing and gates for the treatment portion of the UMCDF is shown in Figure 1-1. These security systems prevent unknowing entry into the UMCDF and minimize the possibility for the unauthorized entry of persons or livestock onto the UMCDF by use of the following procedures and equipment: (1) fencing around the entire UMCD perimeter; (2) 24-hours-per-day, 7-days-per-week surveillance by roving armed patrols; (3) warning signs posted along perimeter fences to discourage unknowing or unauthorized entry; (4) entry to the UMCD is limited to gates, staffed by armed security personnel; (5) access limited to persons and vehicles displaying appropriate identification; (6) two-way radio or alternative means of communication between security personnel, selected UMCD personnel, and a central communications center; (7) telephone communications available at selected facilities; and (8) security lighting provided at key locations.

The UMCDF administration offices, J-Block permitted storage, and some other waste-management areas managed under the UMCDF's EPA ID number are located outside the treatment area.

## 1.1. SECURITY PROCEDURES AND EQUIPMENT

[40 CFR 264.14,; OAR 340-104-0001]

The general security provisions for the UMCDF shall include: (1) double fencing surrounding the UMCDF treatment area; (2) 24-hours-per-day, 7-days-per-week surveillance by additional stationary and roving UMCD armed patrols; (3) warning signs posted at the UMCDF perimeter; (4) entry to the UMCDF treatment area limited to gates staffed by UMCD armed security personnel; (5) access to the UMCDF treatment area limited to persons and vehicles displaying appropriate identification issued only by the UMCD; (6) two-way radio or alternative means of communication between security personnel, UMCDF personnel, and the central communications center; and (7) security lighting to illuminate the UMCDF treatment area. In addition, UMCD security personnel patrol the UMCDF constantly in a random manner.

During the remaining HD ton container storage and treatment operations, the permittee must comply with both Sections 1.1.1 and 1.1.2 of this attachment. After HD ton container storage and treatment operations have been completed and no more surety chemical agent remains on the UMCD or the UMCDF, the permittee shall only be required to comply with Section 1.1.2 except as allowed by 40 CFR §264.14(a) and the Closure Plan (Permit Attachment 8).

1.1.1. Twenty-Four-Hour Surveillance System
[40 CFR 264.14(b)(1); OAR 340-104-0001]

Continuous surveillance of the UMCDF and the UMCD Chemical Limited Area shall be accomplished by roving UMCD security patrols. Each roving patrol is motorized and radio-equipped and assigned to a specific patrol area during its watch.

1.1.2. Barrier and Means to Control Entry
[40 CFR 264.14(b)(2)(i); OAR 340-104-0001]

1.1.2.1. **Barrier**
[40 CFR 264.14(b)(2)(i); OAR 340-104-0001]

The UMCDF treatment area is surrounded by two approximately 7-foot-high chain-link security fences. These fences are separated by 30 feet. Each fence is topped with dual-strand barbed wire, for a total height of approximately 8 feet. This design forms a buffer zone surrounding the UMCDF. The perimeter is completely lighted. The bottom of the fence is close enough to firm ground to prevent an intruder from crawling under the fence.

The UMCD perimeter fence, consisting of a five-foot-tall chain link fence with barbed wire on top, serves as a barrier to unauthorized entry to the J-Block storage area.

The permittee shall maintain these fences in good repair.

1.1.2.2. **Means to Control Entry**
[40 CFR 264.14(b)(2)(ii); OAR 340-104-0001]

Access to the UMCDF treatment area within the double-fenced perimeter requires specially signed forms. Visitors are always accompanied during their visit within the UMCDF treatment area and are subject to security checks.

For those individuals who routinely work in the UMCDF treatment area special badges are issued and indicate that the individual is certified to work in this area. If the special badge has been revoked or restricted for any reason or the person's name is not on the UMCDF entry control roster, the worker will not be allowed past the guards. Entry badges are also coded to indicate limited versus full access once inside the UMCDF treatment area.

Access to the UMCDF treatment area is controlled by a remote-activated double-gate and turnstile system. All gate guards are armed and have authorization to use deadly force.

For vehicle entry to the UMCDF treatment area, all persons but the driver must enter through the double turnstiles. Only the driver is allowed to drive the vehicle to a zone between two gates, both of which are locked upon entry. The vehicle is thoroughly inspected, including under the hood and seats, in the trunk, etc. The second gate is then opened to permit the vehicle into the UMCDF treatment area. This procedure is reversed upon leaving the UMCDF treatment area. The only exceptions to this procedure occur during an emergency.

Some workers require temporary entry passes. Employees, such as electricians, grounds mowers, etc., fall in this "temporary entry" category. These personnel are accompanied by an escort during their time within the UMCDF treatment area.

Entry into the UMCDF is made at the main guard gate or auxiliary gate. The main gate is manned 24 hours a day by an armed guard. All auxiliary gates are manned during all periods of use. Anyone requesting entrance at one of the auxiliary gates must have an appropriate badge. All visitors to the UMCD storage areas must obtain their entrance badges.

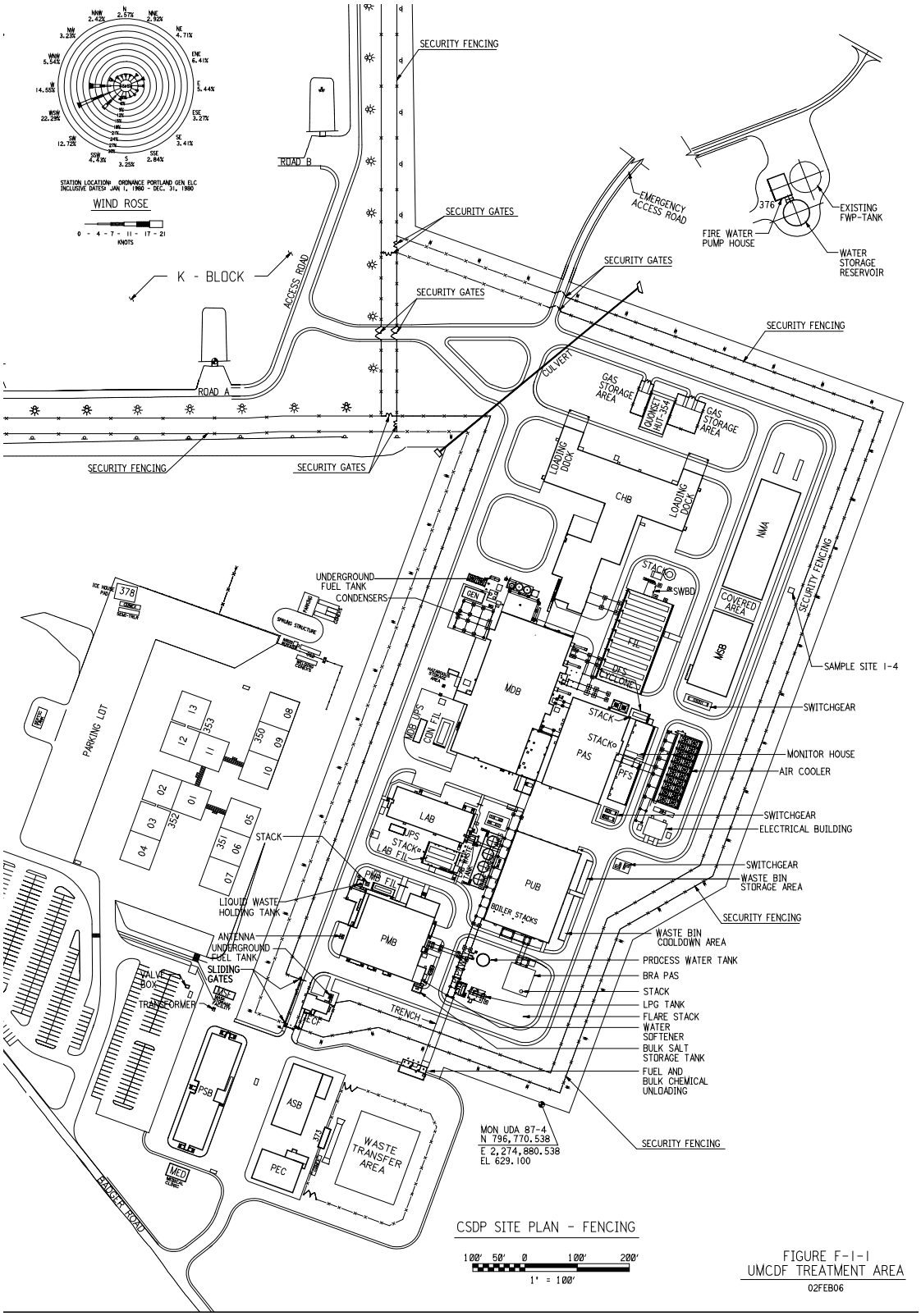
In order for a visitor to gain access to the J-Block storage area, he/she must have an established need to enter and must be properly badged.

1.1.2.3. **Warning Signs**
[40 CFR 264.14(c); OAR 340-104-0001]

Signs warning stating the area is restricted and dangerous, and that unauthorized entry is illegal are posted along the perimeter fence surrounding the UMCDF treatment area at intervals of 500 feet or less and near all access gates. These signs are approximately 18 inches by 24 inches and easily visible at a distance of 25 feet. Large signs describing the "Conditions of Entry" are posted at each UMCD gate. These signs warn of the possible consequences of unauthorized entry. The warning signs are in both English and Spanish.

J-Block storage igloo doors are marked, “Danger – Unauthorized Personnel Keep Out.” The markings are visible from a distance of at least 25 feet.

## FIGURE 1-1. UMCDF TREATMENT AREA



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# Preparedness and Prevention Requirements

## 2. PREPAREDNESS AND PREVENTION REQUIREMENTS
[40 CFR 264.32; 264.35, ; OAR 340-104-0001]

### 2.1. Equipment Requirements

#### 2.1.1. Internal Communications
[40 CFR 264.32(a); OAR 340-104-0001]

Immediate emergency notification and instruction is provided to UMCDF personnel working outside by sirens and the accompanying public address system. Sirens are located in strategic locations throughout the UMCD. The public address speakers are located together with the sirens. The Operations Center has the capability of sounding the sirens individually, in any combination, or all at the same time. The public address system can broadcast recorded or live messages. Live messages are used in most instances. A second siren network is available for back up, and is controlled by the UMCD Fire Department. This network does not have the capability of broadcasting messages. The sirens may be sounded individually or all at once.

Personnel working in J-Block communicate via two-way radio or cellular phone.

During hazardous waste operations, all personnel involved in the operation have immediate access (either directly or indirectly through visual or voice contact with another employee) to an internal alarm or emergency communication device. Telephones and public-address loudspeakers are available throughout the UMCDF treatment area for use in case of emergencies. This telephone system is available for internal as well as external communications. The UMCDF's emergency communications systems are further described in Permit Attachment 9.

#### 2.1.2. External Communications
[40 CFR 264.32(b); OAR 340-104-0001]

The UMCDF telephone system provides the means for external communications with the UMCD and the surrounding areas. Cellular phones are used for external communications to and from J-Block.

#### 2.1.3. Emergency Equipment Requirements
[40 CFR 264.32(c); OAR 340-104-0001]

The UMCDF maintains an extensive inventory of emergency equipment.

Portable fire extinguishers, a sprinkler system, a fire extinguishing medium system, and a dry chemical system are built into the UMCDF treatment units to minimize the threat of fire. Portable fire extinguishers are available in J-Block. A detailed list of all emergency equipment , including spill control equipment and decontamination equipment, is located in Section 7 of Permit Attachment 9. The emergency storage stations shall include the equipment identified in Permit Attachment 3 and Permit Attachment 9. The UMCD is the first responder for fire-related emergencies, and shall maintain fire trucks and other emergency equipment necessary to adequately respond to a fire at the UMCDF.

2.1.4. Water for Fire Control
[40 CFR 264.32(d); OAR 340-104-0001]

A storage tank and pump system designed to provide water at adequate volume and pressure to supply the UMCDF fire water needs. The fire water reserve is 362,000 gallons. A primary and a backup fire pump are located at the water storage tank. Each pump is powered from an independent power source to ensure fire water flow on demand in the event of an interruption in one of the sources of power. All water storage tank system components are designed to National Fire Protection Association standards. The fire protection system is described in Section 7 of Permit Attachment 9 (the Contingency Plan). In addition, a 120,000-gallon water tower located on North Patrol Road may be used to fight fires in J-Block.

## 2.2. AISLE SPACE REQUIREMENTS
[40 CFR 264.35; OAR 340-104-0001]

The Container Handling Building, the Munitions Demilitarization Building, and J-Block igloos are used for container storage. The storage area arrangements provide efficiency in container storage, provide adequate access for fire fighting, meet minimum fire code requirements, and allow easy access for personnel and equipment needed for inspections and emergency operations.

The Container Handling Building stores the munitions and bulk items before demilitarization processing. There is a minimum of four feet of aisle space between containers in the Container Handling Building. Aisle space for permitted storage in the Munitions Demilitarization Building and J-Block is maintained in accordance with 40 CFR 264.35.

Drawings UM-07-G-501 through UM-07-G-506 (in Permit Attachment 12) show the container storage arrangements for the Container Handling Building.

# Preventive Procedures, Structures, and Equipment

## 3. PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT
[40 CFR 264.30 - 34]

The UMCDF procedures, structures, and equipment utilized to prevent releases to the environment and to protect human health are described below.

### 3.1. Unloading Operations

The three categories of remaining waste managed at the UMCDF include, but is not limited to: (1) chemical agent in ton containers; (2) the brine salts; and (3) the incinerator ash, residues, slag, ventilation system filters, spent carbon, and other demilitarization waste. (See Attachment 2 of the UMCDF Permit for more detail.)

Brine and spent decontamination solution are not physically handled. The brines may be pumped from the incinerator pollution abatement system to the brine surge tanks before they are fed to the Brine Reduction Area. Brines may also be pumped to the brine load/unload station from either the PAS or the brine surge tanks for transfer to tankers for off-site disposal. Spent decontamination solution is collected in sumps, pumped to the spent decontamination holding tanks, and then pumped to the Liquid Incinerators' secondary chambers.

The HD ton containers are delivered to the Container Handling Building in enhanced on-site containers (EONCs) via transport truck. They are unloaded from the transport truck and placed in the Container Handling Building. From the Container Handling Building, the EONCs are transported by a pneumatic roller track conveyor system and lift system and then on a conveyor to the Munitions Demilitarization Building. There they are unloaded in the unpack area where processing begins.

When brines are processed at the Brine Reduction Area, the brine salts are discharged directly to collection containers. The filled containers are covered and labeled. The containers of brine salts are then moved via forklift to the Residue Handling Area, to await transportation to an approved off-site hazardous waste treatment, storage, or disposal facility.

Incinerator ash, slag, and residues are handled in the same manner as the brine salts. These wastes, like the brine salts, are placed into collection containers. The spent carbon from the ventilation systems and other carbon filter systems is removed and placed in containers.

Hazards in J-Block unloading operations (as well as handling and loading operations) are minimized through implementation of the appropriate provisions in project-approved, controlled procedures. Hazards during unloading and other waste handling operations at J-Block are also minimized through the use of training. All hazardous waste handlers are trained for their respective job duties; personnel who load and unload hazardous waste receive training on those activities before performing them.

### 3.2. Runoff

Runoff from all hazardous waste handling areas to other areas of the UMCDF or the environment is prevented by UMCDF design features. Waste handling in the Container Handling Building, Munitions

Demilitarization Building, Residue Handling Area, and Brine Reduction Area take place in enclosed buildings. The J-Block igloos are also enclosed structures. These measures minimize the potential for precipitation runoff to reach these areas. The waste handling areas of the Container Handling Building, Munitions Demilitarization Building, and the Brine Reduction Area have floor drains and/or sumps for collection of spilled hazardous waste. The floor sumps for all hazardous waste management areas of the Munitions Demilitarization Building have provisions for transferring sump contents to spent decontamination holding tanks. The other areas have passive sumps, which are pumped dry when liquids accumulate in them.

## 3.3. Water Supplies

The processing and storage of all hazardous waste (including brine drying and brine salt storage) at the UMCDF takes place in enclosed structures with concrete bases that prevent the downward percolation of wastes or liquids. In J-Block, secondary containment is provided for containers that hold liquid wastes.

## 3.4. EQUIPMENT AND POWER FAILURE

### 3.4.1. Equipment Failure Control

The automatic control system is designed and operated to perform shutdown of the entire UMCDF or a portion of the UMCDF should an equipment failure (or other emergency) occur. The Control Room has a positive-pressure, filtered-supply air system providing protection against toxic fumes that could be emitted during an emergency. A detailed description of the automatic control system is provided below.

The automatic control system in the Control room uses process controllers with functional keyboard(s) for operator interface and control of the system, as required, monitors for displays, and a printer to print out alarms and messages. The process controllers contain the programs for each type of waste to be treated at the UMCDF and process-supporting systems, such as utilities and heating, ventilation, and cooling systems. An operator is able to remove a unit or piece of equipment from automatic control and control it manually through the keyboard on the console. The automatic control system is designed as a fail-safe system. All local controllers communicate with the Control Room on a real-time basis. Should this communication link become inactive (presumably from a failure in the automatic control system), the local controls automatically fail to a safe mode. The communication system is a redundant system to reduce the likelihood of a failure in the communication link.

Initialization of the automatic control system is necessary before HD ton container processing can begin. The initialization procedure resides within the process controller; the actual initialization is a semiautomatic operation. When the initialization has been successfully completed, the operator is notified via a monitor, which indicates that all permissives have been received and the automatic control system is now ready to process the ton container. Any problems that may arise during the initialization is displayed on the monitor and an alarm is actuated.

Before processing HD ton containers, each system is prechecked by a test program from within the process controller. If the presence of a HD ton container is required to perform checks, that function is bypassed by the process controller during this check.

After initialization and performance verification, a second level of performance verification is conducted by the process controller that verifies the presence of any shutdowns and any permissive interlocks.

Having met all performance verification checks, a message appears on the monitor and printer that the UMCDF, as viewed by the process controller, is ready for operation.

After start of the automatic control system has been initiated, automatic operation follows as long as all individual steps occur within their predetermined parameters and no shutdown signals occur. If a step or function does not occur within its predetermined parameters, a message appears on the monitor and on the printer; the operator must take action. This requirement for operator intervention is not the same as that required by loss of permissive or shutdown action.

Shutdown requests and interlocks are monitored continuously. Where possible, applicable prealarms or indications that a shutdown condition is imminent are used. This gives the operator time to prevent a shutdown or to be prepared for it. Interlocks have been developed to respond to various conditions in a manner applicable to the condition and equipment. As an example, some shutdowns are immediate, while others are staged. The system logs all abnormal conditions, such as starting and stopping of equipment. These logs and records are analyzed for malfunction reports, maintenance, etc.

In addition to the automatic control system, equipment such as incinerators, boilers, and airlock doors in the unpack area and each load station have a local control panel that offers limited control. Local control panels offer the capability of operating in conjunction with the automatic control system or independently for maintenance purposes. Areas such as the unpack area or incinerators are operated in a semiautomatic mode, either during normal operation or startup. In the semiautomatic mode of operation, the automatic control system may start a unit and wait for the next step to be initiated and controlled by an operator before proceeding to the next logic control step.

J-Block igloos are not equipped with electrical power and, consequently, are not controlled by the automatic control system.

### 3.4.2. Incineration Upset Control

A control system provides continuous automatic control of the incineration process. System interaction by the operator is limited to initiation of process systems or reaction to abnormal conditions. In monitoring critical functions, the automatic control system gives advance warning of alarms where possible, indicating that a critical or hazardous condition is developing and warning operators in time to take action. Interlocks are provided to respond to various conditions. Shutdown could be immediate or staged. More detailed system shutdown procedure descriptions are provided in applicable standing operating procedures as required by Permit Condition I.L).

All incinerators have automatic waste feed cut-off systems. For example, with the Deactivation Furnace System, all feed stops (blast gates will close) under emergency shutdown conditions caused by loss of flame in the rotary retort pilot burner or afterburner, loss of flame in the two afterburner pilot burners or afterburners, low pressure from the rotary retort or afterburner combustion air blowers, low natural gas pressure from the gas supply line, high combustion velocity, or detection of chemical agent in the stack gas.

### 3.4.3. Emergency Power

The emergency power system consists of a diesel-driven electrical generation system adjacent to the Munitions Demilitarization Building. The system is capable of carrying the UMCDF's entire emergency load and provides backup power to all of the critical and essential loads in case of a power outage.

Critical functions such as computer memory, communication, selected instrumentation, emergency lighting, and other selected loads are connected to the uninterruptible power supply, which consists of a rectified charger, inverter, static switch, batteries, protective devices, instruments, and controls. The uninterruptible power supply provides power to critical loads without practical interruption and will be monitored from the Control Room. Because of the size of the uninterruptible power supply, the excess capacity is used for monitors, fire alarms, and other devices. If both primary feeders are lost, emergency shutdown occurs. Loss of one feeder does not start the emergency generator, but the generator will start and come online if both primary feeders from the utility are lost. During the switching and generator startup, the uninterruptible power supply ensures constant power to the critical items. If the emergency generator is lost, power for the critical items connected to uninterruptible power supply is available for 45 minutes.

A listing of the equipment that remains operational under emergency generator power and critical items connected to the uninterruptible power supply is provided in Table 3-1 and Table 3-2.

### 3.4.4. Spent Decontamination Collection System

In all Category A and B areas, as well as in most Category C areas, spent decontamination sumps and pump(s) are provided to collect any washdown from that area and pump it to one of the spent decontamination holding tanks e.

All primary sumps are constructed of steel and surrounded by an epoxy-coated external concrete liner. Secondary sumps are constructed of concrete with an epoxy-coated steel liner. The compatibility of materials was considered when designing these sumps. There are no incompatibility problems with the selected materials and anticipated decontamination solutions or other such wastes. All floors in Category A, A/B, and B areas are sloped at a rate of 1/4-inch per foot. In the Explosive Containment Room, the floor slopes to a trench, and the trench slopes at 1/16-inch per foot to the sump. In other Category A areas, the floor may slope to embedded trenches, which then slopes at 1/16-inch per foot to the sump. In Category C areas, the floor slopes at 1/16-inch per foot to the sumps.

### 3.4.5. Chemical Agent Monitoring Equipment

Various chemical agents are routinely handled at the UMCDF. The safe operation of the UMCDF requires not only that agent is not released to the environment during storage and operations, but also that personnel be protected from accidental or inadvertent exposure to these chemical agents. The ventilation system minimizes worker exposure to chemical agents. To supplement the ventilation system, a chemical agent monitoring system is provided to indicate the presence of chemical agents. The Automatic Continuous Air Monitoring System and the Depot Area Air Monitoring System are typically used at the UMCDF treatment area, and the RTAPs are used at the J-Block to monitor for the presence of agent. The capabilities, as well as the principles of operation and deployment areas, for these instruments are described in Permit Attachment 2 (Waste Analysis Plan), Appendices C and D, including a general description of the system, its theory of operation, and its required monitoring levels and response time.

It should be noted that because of the low volatility of mustard agent in ton containers, first-entry monitoring includes a thorough visual inspection of the ton containers in the area in addition to air sampling.

## 3.5. PERSONNEL PROTECTION EQUIPMENT

Various levels of protective clothing are required by UMCDF plans and standing operating procedures to protect workers from the effects of the chemical agent in the work environment. The type of protective clothing worn by the workers is based on the level of protection required by the location, the process, and the type of chemical agent.

## TABLE 3-1. UMCDF EMERGENCY POWER LOAD SUMMARY

| | | | Load (kVA) | Demand Factor | Demand (kVA) |
|---|---|---|---|---|---|
| | Exhaust Air Filter HVC-FILT-101 thru –109 – 7 out of 9 Running | | 700 | 0.8 | 560 |
| | Process Area AHU HVC-AIRH-10 thru –103 – 2 out of 3 Running | | 150 | 0.8 | 120 |
| * | Control RM AHU-HVC-AIRH-104 & -105 | | 75 | 0.8 | 60 |
| | UPS RM AHU HVC-AIRH-108 & -109 | | 6 | 0.8 | 4.8 |
| | Elect RM AHU HVC-AIRH-106 & -107 | | 10 | 0.8 | 8.0 |
| * | Mech Equip RM AHU HVC-AIRH-110A & B | | 20 | 0.8 | 16 |
| | Cont & Mech RM AHU HVC-AIRH-111 | | 2 | 0.8 | 1.6 |
| | Chiller RM AHU HVC-AIRH-113 | | 2 | 0.8 | 1.6 |
| | Emergency General SWGR. RM AHU HVC-AIRH-114 | | 2 | 0.8 | 1.6 |
| * | Control RM Chilled Water Pump HVC-PUMP-140 & -150 | | 15 | 0.8 | 12 |
| * | Instrument Air Compressor IAS-COMP-101 & -102 | | 150 | 0.8 | 120 |
| * | LSS Air Comp LSS-COMP-101 & -102 | | 50 | 0.8 | 40 |
| * | Control Room Chiller HVC-CHIL-140 & -150 | | 88.6 | 0.8 | 70.9 |
| | Emergency Generator AUX | | 75 | 0.8 | 60 |
| | Chiller RM Supply Fan HVC-FANX-103 | | 20 | 0.8 | 16 |
| * | Air Cooled Condenser HVC-COND-140 & -150 | | 8 | 0.8 | 6.4 |
| | DFS Retort DFS-FURN-101 | | 5 | 0.8 | 4 |
| | MPF Primary Combustion Air Blower MPF-BLOW-101<br>MPF Backup Combustion Air Blower MPF-BLOW-102 | *Only one of the two will be running, thus only one is counted in the subtotal.* | 100 | 0.8 | 80 |
| | DFS Lube Oil Pump DFS-FUN-101B/C | | 4 | 0.66 | 2.7 |
| | DFS Thrust Roller DFS-FURN-101D | | 1.5 | 0.8 | 1.2 |
| | Secondary LIC Pit Area AHU HVC-AIRH-120 | | 15 | 0.8 | 12 |
| | Mechanical Equipment Room Air Handling Unit HVC-AIRH-123 | | 1.5 | 0.8 | 1.2 |
| | MPF Secondary Cooling Water Circ Pump SCW-PUMP-101 | | 5 | 0.8 | 4 |
| | Secondary LIC Pit Area Air Handling Unit HVC-AIRC-119 | | 15 | 0.8 | 12 |
| | HVC-FANX-108 – Emergency Exhaust | | 2 | 0.8 | 1.6 |
| | | | | Subtotal | 1,217.6 |

## TABLE 3-1. UMCDF EMERGENCY POWER LOAD SUMMARY

| | | Load (kVA) | Demand Factor | Demand (kVA) |
|---|---|---|---|---|
| | MPF Furn MPF-FURN-101A, B, & C | 6 | 0.8 | 4.8 |
| | MPF Conveyor MMS-CNVP-119 & MPF-CNVP-101 | 4 | 0.8 | 3.2 |
| * | Decon Supply Pump CDS-PUMP-102 & -103 | 20 | 0.8 | 16 |
| * | Decon Circulating Pump CDS-PUMP-105 & -106 | 1.5 | 0.8 | 1.2 |
| * | Hot Water Boiler PUB-BOIL-201 & -202 | 55 | 0.8 | 44 |
| * | Hot Water Boiler PUB-PUMP-201 & -202 | 125 | 0.8 | 100 |
| | Process Water Supply Pump PRW-PUMP-101, -102, -103 (2 out of 3 Running) | 80 | 0.8 | 64 |
| * | Pri. Cooling Med. Circ. Pump PCS-PUMP-101 & -102 | 20 | 0.8 | 16 |
| * | Pri. Cooling Med. Air Cooler PCS-COOL-101A & B | 25 | 0.8 | 20 |
| * | LIC #2 Quench Brine Pump PAS-PUMP-211 &-212 | 40 | 0.8 | 32 |
| * | MPF Quench Brine Pump PAS-PUMP-102 & -103 | 40 | 0.8 | 32 |
| * | DFS Quench Brine Pump PAS-PUMP-106 & -107 | 100 | 0.8 | 80 |
| | UPS Power | 225 | 0.7 | 157.5 |
| | LAB Power | 40 | 1.0 | 40 |
| | Emergency Lighting & Miscellaneous Loads | 300 | 0.8 | 240 |
| | DFS Secondary Combustion Air Blower DFS-BLOW-102 | 100 | 0.8 | 80 |
| | PMB Power | 50 | 0.8 | 40 |
| | DFS Cyclone Enclosure Filter | 40 | 0.8 | 32 |
| | LIC #1 Quench Brine Pump PAS-PUMP-111, -112 | 80 | 0.8 | 64 |
| | LIC 1 PFS Gas Reheater Blower PFS-BLOW-101 | 1 | 0.8 | 0.8 |
| | LIC 2 PFS Gas Reheater Blower PFS-BLOW-201 | 1 | 0.8 | 0.8 |
| | MPF Secondary Cooling Water Circ Pump SCW-PUMP-102 | 5 | 0.8 | 4 |
| | Filter Blower HVC-FILT-601 | 20 | 0.8 | 16 |
| | | | Subtotal | 1,088.3 |

## TABLE 3-1. UMCDF EMERGENCY POWER LOAD SUMMARY

| | | Load (kVA) | Demand Factor | Demand (kVA) |
|---|---|---|---|---|
| | MPS PFS Gas Reheater Blower PFS-BLOW-102 | 1 | 0.8 | 0.80 |
| | DFS PFS Gas Reheater Blower PFS-BLOW-103 | 2 | 0.8 | 1.60 |
| $ | LIC 1 Clean Liquor Air cooler PFS-COOL-113AA/AB/BA/BB | 20 | 0.8 | 16.00 |
| $ | LIC 2 Clean Liquor Air cooler PFS-COOL-213AA/AB/BA/BB | 20 | 0.8 | 16.00 |
| $ | MPF Clean Liquor Air Cooler PFS-COOL-114AA/AB/BA/BB | 20 | 0.8 | 16.00 |
| $ | DFS Clean Liquor Air cooler PFS-COOL-115AA/AB/BA/BB/CA/CB/DA/DB | 40 | 0.8 | 32.00 |
| $ | MPF Exhaust Blower PAS-BLOW-102A/B 1 out of 2 Running | 25 | 0.8 | 20 |
| $ | DFS Exhaust Blower PAS-BLOW-103A/B 1 out of 2 Running | 25 | 0.8 | 20 |
| $ | LIC 1 Exhaust Blower PAS-BLOW-104A/B 1 out of 2 Running | 25 | 0.8 | 20 |
| $ | LIC 2 Exhaust Blower PAS-BLOW-204A/B 1 out of 2 Running | 25 | 0.8 | 20 |
| * | LIC 1 Clean Liquor Pump PFS Pump – 134/135 | 75 | 0.8 | 60 |
| * | LIC 2 Clean Liquor Pump PFS Pump – 234/235 | 75 | 0.8 | 60 |
| * | MPF Clean Liquor Pump PFS Pump – 136/137 | 75 | 0.8 | 60 |
| * | DFS Clean Liquor Pump PFS Pump – 138/139 | 150 | 0.8 | 120 |
| | PFS Misc. Loads (lighting, ventilator, etc.) | 100 | 0.8 | 80 |
| | LIC #1 Slag Removal Heaters | 35 | 0.8 | 28 |
| | LIC #1 Slag Removal Conveyors | 20 | 0.1 | 2 |
| | LIC #2 Slag Removal Heaters | 35 | 0.8 | 28 |
| | LIC #2 Slag Removal Conveyors | 20 | 0.1 | 2 |
| | | | Subtotal | 602.4 |
| | | | Total Demand (page 1) | 1,217.6 |
| | | | Total Demand (page 2) | 1,088.3 |
| | | | Total Demand (pages 1, 2, 3) | 2,908.3 |
| | | | 10% future spare = | 290.8 |
| | | | Total Demand including spare = | 3,199.1 |
| | | | Total Demand with diversity factor (assumed 1.2) = | 2,665.9 |
| | | | Use 2,250-kW generator @ 0.8 power factor = | 2,812.5 kVA |

* 1 out of 2 Running
$ Adjustable-speed drive

## TABLE 3-2. UMCDF UNINTERRUPTIBLE POWER SUPPLY (UPS)

| Critical Systems Connected to the UPS* |
|---|
| Process Logic Controllers (PLCs), Status Boards, and Operator Consoles |
| Process Data Acquisition and Recording (PDAR) |
| Automatic Continuous Air Monitoring System (ACAMS) and Depot Area Air Monitoring System (DAAMS) |
| Continuous Emissions Monitors (CEMS) |
| Public Address System and Closed-Circuit Television |
| Control Room (CON) Lighting and Evacuation Lighting |
| Battery Room Ventilation Fans |
| Level A Personal Protective Equipment (Demilitarization Protective Ensemble [DPE]) Radio Receptacles and Amplifiers |
| Fire Shutters and Fire Isolation Dampers |
| MDB, Laboratory, and Control Room HVAC Systems |

*This list reflects types of equipment connected to the UPS system; however, not all equipment of all listed types are connected to the UPS system (i.e., not all ACAMS are connected to the UPS system, only a select group of ACAMS considered critical are connected).

# Prevention of Reaction of Ignitable, Reactive, or Incompatible Waste

## 4. PREVENTION OF REACTION OF IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE [40 CFR §264.17, 264.176, 264.177, 264.198, 264.199; OAR 340-104-0001]

### 4.1. Precautions to Prevent Reaction of Ignitable or Reactive Wastes

The ignitable wastes permitted at the UMCDF include the HD mustard ton containers, which have become pressurized by the buildup of hydrogen during the years of storage in the igloos. The ignitability characteristic is required to be treated in accordance with Module V requirements (e.g., in the depressurization glove box) before any further demilitarization activities may take place.

Reactive wastes at the UMCDF include chemical agents by Environmental Protection Agency (EPA) characterization, explosives, propellants, and certain active ingredients in the fuzes. No precautions were taken by the UMCDF to protect reactive wastes from contact with the water from the automatic sprinkler systems. The munitions containing explosives, propellants, and fuze components have all been treated and are no longer present at the UMCDF. The chemical agents are slightly soluble in water. The chemical agents are all heavier than water (specific gravity greater than 1) and would be covered or blanketed by water, reducing the volatilization rate from any pool of chemical agent. Dissolution of a small amount of chemical agent in water also has the effect of reducing the partial pressure of the chemical agent above the solution. For these reasons, no special precautions are necessary to prevent contact with water from the automatic sprinkler systems. In fact, the reverse is true; flooding a small spill of chemical agent with a large amount of water is a possible emergency mitigation technique.

The demilitarization process and operations in the Munitions Demilitarization Building are designed to prevent accidental ignition or reaction of chemical agent. Cutting (other than as part of demilitarization machine operation) and welding will not be permitted within the process areas of the Munitions Demilitarization Building while depressurizing ton containers in those areas. The entire building is a designated nonsmoking area marked by conspicuously placed signs. During ton container and secondary waste processing, all equipment is grounded to prevent the transfer of electrostatic charges to the munitions.

Handling procedures have been incorporated into the transportation and UMCDF operation procedures to apprise personnel of the importance of handling the ton containers. Conveyors and charge cars are used to transport the ton containers and secondary waste within the Munitions Demilitarization Building. The conveyor will incorporate stops, interlocks, and guard rails that will prevent the ton containers and secondary waste from falling.

The UMCDF is protected from fires and explosions potentially caused by electrical shorts, fuel leaks, overheated equipment, or miscellaneous equipment and operator failures by fire protection systems designed to meet the special needs of the UMCDF areas. A description of the building fire protection system is provided in the Contingency Plan, in Section 7.

The probability of an explosion occurring in the Deactivation Furnace System is low. The system is designed, however, so that the effects of an explosion within the incinerator are minimized, and the system's barrier (room) is designed to contain the explosive effects of an explosion in the system (similar

to the Explosive Containment Rooms). Materiel entrance to the rotary retort is accomplished through the blast gate, which isolates the rotary retort in case of an explosion. During Deactivation Furnace System operations, this was normally an unmanned area; however, the Deactivation Furnace System is not currently in use.

The chemical agent in the ton containers, the last remaining chemical agent campaign is remotely removed/drained by the Bulk Drain Station. This area requires protective clothing and will normally be unmanned during processing operations. The probability of reaction of the chemical agents is low because of the contained design of the Bulk Drain Stations and the compatibility of the materials in the UMCDF. If a reaction of chemical agents occurs, the system has been designed to contain all gases.

Waste stored in igloos is separated and protected from sources of ignition or reaction. Smoking is prohibited in the J-Block storage area, and "No Smoking" signs are posted on igloo exteriors. In addition, two igloo design features keep air in the igloos as cool as possible during the warm, summer months. Approximately two feet of fill covering each igloo insulates them from warm ambient temperatures; and for all igloos not containing higher-level waste, the different levels of the two ventilation stacks allows for air exchange.

### 4.2. General Precautions for Handling Ignitable or Reactive Wastes and Mixing of Incompatible Wastes

[40 CFR 264.17(b) and (c); OAR 340-104-0001]

General precautions for handling reactive waste are discussed above. Ignitable waste s are separated and protected from sources of ignition or reaction. When ignitable waste is being handled, smoking and open flames are prohibited from the vicinity of the ignitable waste. "No Smoking" signs are placed wherever there is a hazard from ignitable waste. Incompatible secondary wastes are stored in separate J-Block igloos.

### 4.3. Management of Ignitable or Reactive Wastes in Containers

[40 CFR 264.176; OAR 340-104-0001]

The brine salts, incinerator ash, Deactivation Furnace System cyclone residue, spent carbon, spent ventilation filters, Liquid Incinerator slag, and other demilitarization waste stored in containers are neither ignitable nor reactive. Therefore the requirements of 40 CFR 270.15(c) and 264.176 are not applicable to this waste. The containers of chemical agent are not ignitable regardless of whether a waste is ignitable or reactive.

### 4.4. Management of Incompatible Wastes in Containers

[40 CFR 264.177(a), (b), and (c); 340-104-0001]

No mutually incompatible hazardous wastes are stored in containers. Incompatible waste are stored in different J-Block igloos. Waste in J-Block igloos is segregated in accordance with Permit Condition III.B.9.

### 4.5. Management of Ignitable or Reactive Wastes in Tank Systems

[40 CFR 264.198(a)(2); OAR 340-104-0001]

Brine and spent decontamination solutions have flash points that classify them as Class IIIB liquids in accordance with the National Fire Protection Association. These are not unstable, ignitable, or reactive

liquids, as defined by the National Fire Protection Association. The brine surge tanks and the spent decontamination holding tanks must be in full compliance with the National Fire Protection Association requirements. The agent holding tank, spill tanks, and spent decontamination holding tanks are located in the Toxic Cubicle and Spent Decontamination System Rooms. These areas are provided with trenches and sumps that provide containment in excess of the largest tank capacity. The spacing between tanks is in excess of 3 feet.

All tanks in the UMCDF are single purpose in design so, with the exception of the Spent Decontamination Holding Tank System, no mixing activities are possible. The wastes that enter the Spent Decontamination Holding Tank System include spent decontamination solution and dilute liquid laboratory wastes. Because the liquid laboratory wastes is primarily water, there should be no potential for adverse reactions. Small amounts of other waste streams such as Personnel Maintenance Building waste tank liquids and liquids from EONCs may also be sent to the spent decontamination system tanks. All these waste streams are expected to be primarily water, so no compatibility issues are anticipated. The storage of reactive waste is in accordance with National Fire Protection Association Code 30.

### 4.6. **Management of Incompatible Wastes in Tank Systems**
[40 CFR 264.199(b); OAR 340-104-0001]

The design of the UMCDF only allows for brines from the incinerator pollution abatement systems to go to the brine surge tanks in the Brine Reduction Area; spent decontamination solutions and liquid wastes from the laboratory and other sources to go to the spent decontamination holding tanks or containers; and drained chemical agent to go to the agent tanks. All pollution abatement system brines from all of the incinerators are compatible, whether processing chemical agents GB, VX, or mustard. Different chemical agents will not be processed together; and when changing from one chemical agent to another, the agent tanks were decontaminated.

# Procedures for Waste Releases in Nontoxic Areas of the MDB and Waste Releases and Precipitation Outside the MDB

## 5. WASTE RELEASE AND PRECIPITATION MANAGEMENT PROCEDURES

### 5.1. Procedures for a liquid chemical agent spill or leaked waste in the nontoxic areas (Categories C, D, and E) of the Munitions Demilitarization Building

5.1.1. Stop all chemical agent processing, and shut down munitions feed, conveyors, and liquid incinerators, if affected.

5.1.2. Verify that UMCDF chemical agent monitors are operational and verify that spill vapor is contained.

5.1.3. Assess onsite spill and implement cleanup plan.

5.1.4. Isolate the chemical agent tank or piping that is leaking and transfer contents to appropriate storage tanks.

5.1.5. Flood area with Department of Army-approved decontamination solution for large spills (greater than 5 gallons), pump the contaminated decontamination solution to the spent decontamination holding tanks, and have emergency response team perform decontamination procedure.

5.1.6. Have maintenance staff repair leak in accordance with the requirements of the permit and site procedures.

5.1.7. Have the emergency response team perform decontamination procedures, and maintenance staff make repairs for small spills in accordance with the permit and site procedures.

5.1.8. Bag and incinerate any sorbent materials used in decontamination procedures in accordance with the Waste Analysis Plan (WAP) or place in permitted storage, as required.

### 5.2. Procedures for spills, leaked wastes, and precipitation outside of the Munitions Demilitarization Building

5.2.1. Spills, leaks, or precipitation in the pollution abatement systems areas must be collected in the pollution abatement system sumps and may be pumped to the brine surge tanks.

5.2.2. Spills, leaks, or precipitation at the brine surge tanks must be collected in the sump located within the diked area and may be containerized or pumped to the brine surge tanks.

5.2.3. Emergency Response Teams and maintenance personnel must don the appropriate level of protective clothing and conduct the applicable decontamination procedures and repair leaks.

5.2.4. Sorbent materials used in decontamination procedures must be bagged and incinerated in accordance with the WAP or placed in permitted storage, as appropriate.