PART IV

STORAGE AND TREATMENT IN CONTAINMENT BUILDINGS

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The Permittees are allowed to construct the Munitions Unloading Corridor, the Energetics Service Magazine Corridor, the AFA, the Clean Dunnage Storage Area, and the Clean Munitions Body Cooldown Storage Area, and the following containment buildings: the Munition Service Magazines, the Energetics Service Magazine, the Enhanced Reconfiguration Building, Automated Guided Vehicle (AGV) Corridor, and the Agent Processing Building, for the eventual staging, storing and treating of hazardous waste in containers, tanks, miscellaneous treatment units and containment buildings following the applicable requirements of 6 CCR 1007-3 Part 264 Subparts I, J, X and DD and in the following manner:

IV.A. UNIT DESCRIPTIONS AND DESIGN DETAILS

The Munitions Service Magazines (MSMs) and Munitions Unloading Corridor (MUC), the Enhanced Reconfiguration Building (ERB), the Energetics Service Magazine (ESM) and ESM Corridor, the Automated Guided Vehicle (AGV) Corridor, and the Agent Processing Building (APB) shall be constructed and maintained as described in the following paragraphs. The general plot plan for these buildings is found on figure 24852-RD-P1-000-P0030.

IV.A.1. Munitions Service Magazines, Energetics Service Magazine, and Associated Corridors

The MSMs (Munitions Service Magazine) are reinforced concrete igloos. An MSM is a conventional oval arch storage magazine constructed of prefabricated reinforced concrete arch that includes the walls and roof that is secured to a concrete slab floor. The hazardous waste storage area in an MSM is a single room that is 90 feet long, 26 feet wide and 14 feet high. The ESM (Energetics Service Magazine) is similar in structure to an MSM and is 90 feet long, 26 feet wide and 14 feet high. Three MSMs will be used to store and stage waste munitions for treatment and will be constructed at the facility as shown on the drawings listed in Table IV.A.1 below. The ESM will be used to store and stage waste energetics (non-agent contaminated) for subsequent off-site shipment. The ESM will be constructed at the facility as shown on the drawings listed in Table IV.A.1 below. Hazardous waste munitions will be stored and staged on pallets in over-pack pallet containers. Typical storage arrangements are shown on figure D-1-1 for the MSM.

Table IV.A.1	
Drawing	**Title**
Figure D-1-2	Cross Section -- Munitions Service Magazine (MSM)
Figure D-1-1	Typical Stacking and Storing Arrangement Munitions Service Magazine (MSM)
Figure D-1-4	Cross Section- Energetics Service Magazine (ESM)
D-1-3	ESM, Typical Stacking and Storing Arrangement Energetics Service Magazine (ESM)
Figure F from base plan 08-ERB-S0051-001	MSM Subpart DD Typical Storage Arrangements Base Plan DB-ERB-S0051-001

Drawing	Title
Transfer corridor drawings	
24852-RD-DB-ERB-S0070001 MSM	ESM Transfer Corridor Sections
24852-RD-DB-ERB-S0070002	Transfer Corridor Sections
24852-RD-DB-ERB-S0030002	MSM Transfer Corridor Foundation Plan
24852-RD-DB-ERB-S0030003	MSM Transfer Cor. Foundation Plan Sheet 1
24852-RD-DB-ERB-S0030004	MSM Transfer Cor. Foundation Plan Sheet 2
24852-RD-A2-ERB-A0036	ESM Material Transfer Corridor exterior elevations
24852-RD-A2-ERB-A0037	MSM Material Transfer Corridor exterior elevations
24852-RD-A2-ERB-A0039	ESM and MSM material transfer corridor building sections

IV.A.2. Enhanced Reconfiguration Building

The ERB (Enhanced Reconfiguration Building) is a steel frame structure with overall dimensions of 248 feet by 137 feet. The building sits on concrete grade slabs with spread footings. The portion of the building that manages hazardous waste is 193 feet by 137 feet, and contains the following rooms: the Receiving and Traveling Area (ERB-106), Vapor Containment Rooms (ERB-102 and -104), two Reconfiguration Rooms, (ERB-103 and -105), three additional rooms called Explosive Containment Rooms (ECRs) (ERB-110, -111, -112), parts monitoring areas, air locks and munitions transfer areas. Dry sumps are provided in each room for the collection of liquid spills and the collection of decontamination liquids. The ERB will be constructed and operated to meet the Subpart DD design requirements of Part 264, such that it shall be an enclosed structure capable of

supporting operations and stress of weather. The overall design for the ERB is shown in Figure B Base plan P1-ERB-P0030.

IV.A.2.a. Waste munitions will be disassembled and their components segregated in the ERB using Projectile Mortar Disassembly (PMD) equipment. Liquid hazardous wastes will not be managed on the floor or in the sumps in the ERB except in the event of leaking munitions or the decontamination of any chemical agent and/or other hazardous waste constituents. The ERB and associated equipment will be constructed in accordance with the drawings listed in Table IV.A.2.a.

IV.A.2.b Munitions will be brought into the ERB, staged in the Receiving and Traveling Area (RTA), and monitored before they are taken to the Vapor Containment Room(s) or to staging areas near the Explosive Containment Room(s). Temporary storage of munitions will occur in the RTA located on the western portion of the ERB. Hazardous waste will be stored on the sides of the room and in the center. The room is constructed of reinforced concrete with a protective chemical coating. A maximum of 16 full overpack pallets may be stored in the RTA. Each overpack pallet may contain 32 155-mm projectiles (palletized), 48 105-mm projectiles (palletized), 30 105-mm projectiles (boxed), or 48 4.2-inch mortars (boxed). Additional waste storage may occur in the RTA provided PCAPP does not exceed the limitations specified in Figure H in Attachment E.

IV.A.2.c. Design Requirements for the two Vapor Containment Rooms and Reconfiguration Rooms

Operations in the Vapor Containment Rooms (VCRs) include hazardous waste unpacking, storage, segregation, and characterization. The VCRs are 27 feet 4 inches by 33 feet. Munitions are transferred to this room via a conveyor. Monitoring of the munitions will also occur in the VCRs. Munitions that are determined to be < 1VSL via MINICAMS monitoring in the Munitions Monitoring Table (MMT) and are cleared by visual inspection (i.e., no liquid residue contamination present) are then transferred to the Reconfiguration Rooms (RRs) on the transfer conveyor or if they are already reconfigured, transferred to the ECRs. In the reconfiguration rooms, the cartridge casings and the packings are taken off of the 105 mm projectiles. The 4.2 inch mortars are manually segregated from the ignition cartridges, propellants, and obturating devices removed. The energetic wastes are segregated by type and are packaged and transferred to the

ESM. If a leaker is identified, then the leaker is packaged and transferred back to permitted storage. Secondary wastes that test positive for agent contamination are packaged and transferred through the RRs to the repack area. Then they are transferred to the Toxic Maintenance Area (TMA) for treatment. VCRs will be constructed of reinforced concrete with a protective chemical coating. Further details of the equipment and structures in the VCRs and RRs will be provided in accordance with the compliance schedule, Condition I.J. of this permit.

IV.A.2.d. Design Requirements for Explosive Containment Rooms (3)

The Explosive Containment Rooms (ECRs) are 36' by 27' rooms that receive munitions and depending on the munition type various parts are removed. The ECRs house the projectile/mortar disassembly machines (PMDs), associated robots and conveyors. The PMD robot moves the munitions through a series of three PMD stations including the nose closure removal station (NCRS), miscellaneous parts removal station (MPRS), and burster removal station (BRS). Further details of the design for the ECRs will be provided in accordance with the compliance schedule, Condition I.J. of this permit.

IV.A.2.e. Specific Design Requirements for the PMDs

Final design details for the PMDs will be provided in accordance with the compliance schedule, Condition I.J. of this Permit. The isometric drawing for the PMD is 24852-RD-MJ-B01-W0300

Table IV.A.2.a.

Drawing Number	Title
24852-RD-D0-S0006	Standard Concrete Details Sheet
24852-RD-DG-ERB-S0030-010	Enhanced Reconfiguration Bldg. PMD ECR Rebar Arrangement Sheet 10
24852-RD-DG-ERB-S0030-15	Enhanced Reconfiguration Bldg. CMU Sections and Details
24852-RD-DB-ERB-S0030-001	Enhanced Reconfiguration Bldg. Foundation
24852-RD-DB-ERB-S0032-001	Enhanced Reconfiguration Bldg PMD ECR Concrete Outlines-Sheet 1
24852-RD-DB-ERB-S0032-002	Enhanced Reconfiguration Bldg. PMD ECR Concrete Outlines-Sheet 2
24852-RD-DB-ERB-S0033-001	Enhanced Reconfiguration Bldg. Grade Slab Plan Sheet 1 of 2
24852-RD-DB-ERB-S0033-002	Enhanced Reconfiguration Bldg. Grade Slab Plan Sheet 2 of 2
24852-RD-DB-ERB-S0034	Enhanced Reconfiguration Bldg. Grade Slab Sections
24852-RD-DB-ERB-S0037	Enhanced Reconfiguration Bldg. Vapor Containment &

Table IV.A.2.a.	
Drawing Number	**Title**
	Reconfiguration Rooms Grade Slab Plan
24852-RD-DB-ERB-S0041	Enhanced Reconfiguration Bldg. Vapor Containment & Reconfiguration Rooms Sections and Details
Base Plan P1-ERB-P0030	Figure B Enhanced Reconfiguration Building
Base Plan P1-ERB-P0030	Figure E Enhanced Reconfiguration Building
Base Plan P1-ERB-P0030	Enhanced Reconfiguration Building Sump Location
24852-RD-A5-ERB-A0083	Enhanced Reconfiguration Building Finish Schedule Design Requirement Drawing (coating)
24852-RD-P1-ERB-P0030	Enhanced Reconfiguration Bldg. General Arrangement Plan
24852-RD-A1-ERB-A0024	Enhanced Reconfiguration Building MSMS Material Transfer Corridor Floor Plan Sheet 1 of 3
24852-RD-A1-ERB-A0025	Enhanced Reconfiguration Building MSMS Material Transfer Corridor Floor Plan Sheet 2 of 3
24852-RD-A5-ERB-A0026	Enhanced Reconfiguration Building MSM Material Transfer Corridor Floor Plan Sheet 3 of 3
24852-RD-J2-J02-J0002	Enhanced Reconfiguration Building Agent Monitoring System Location Plan
24852-RD-J2-J02-J0012	MSM Corridor Agent Monitoring System SMPLG/ALM location Plan
24852-RD-P1-ERB-P0030	ERB Subpart DD Typical Storage Arrangement
24852-RD-MJ-B01-W0300	ERB-Projectile/Motor Disassembly System Isometric Assembly

IV.A.2.f. The ERB will possess a cascading ventilation system that will provide for negative atmospheric pressure control during hazardous waste treatment or storage operations. At a minimum, the ERB will be maintained at sufficient negative pressure in the order of Category C areas > Category B areas > AFA during hazardous treatment operations to ensure agent and other hazardous waste constituent vapor control by the AFA.

IV.A.3. Automated Guided Vehicle (AGV) Corridor

The AGV corridor is shown on the general plot plan 24852-RD-P1-000-P0030 and has the following dimensions: 440 feet in length and 12 feet wide with two turn out stations and a battery charging station. The AGV corridor is used to transfer munitions in slave pallets and containerized "leaking" munitions that no longer contain energetics or propellants from the ERB to the APB.

The AGV corridor is completely enclosed, self-supporting steel structure that prevents exposure to the elements and contains the managed wastes. The containment building will have sufficient structural strength to prevent collapse or

failure due to settlement, pressure gradients, compression or uplift. The concrete floors will be covered with a protective coating and the surrounding structure will be manufactured and installed to withstand physical contact with hazardous wastes handled within its confines. Furthermore, the AGV corridor will be constructed to withstand varying climactic conditions and the stresses of daily operations inclusive of heavy equipment operation and will be constructed in a manner that will prohibit the contact of equipment with the containment walls.

The AGV Corridor will be constructed in accordance with the following figures:

Table IV.A.3	
Drawing Number	**Title**
24852-RD-DO-000-S0006	Standard Concrete Details
24852-RD-DB-Y-S0070-002	APB/ERB Transfer Corridor Foundation Sections
24852-RD-A4-AGV-A0055	AGV Material Transfer Corridor Interior Elevations
24852-RD-DB-Y-S0030-004	APB/ERB Transfer Corridor Foundation Plan
24852-RD-DB-Y-S0070-004	APB/ERB Transfer Corridor Foundation Sections and Detail

IV.A.4. Agent Processing Building (APB)

Hazardous waste staging, treatment and storage will occur in the APB in rooms, tank systems and miscellaneous treatment units. Rooms and room numbers referenced in this Permit for the APB are defined on drawings numbered 24852-RD-A1-APB-A0021, "Agent Processing Building Floor Plan, Sheet 1 of 2," and 24852-RD-A1-APB-A0022, "Agent Processing Building Floor Plan, Sheet 2 of 2," which are included in Attachment E. The APB dimensions are approximately 169 feet by 304 feet. The APB will be a single-story structure with mezzanine levels consisting of a steel-braced frame with insulated metal roofing and siding. The APB sits upon a reinforced concrete grade slab with spread footings. The APB will be constructed and operated to meet the Subpart DD design requirements of Part 264, such that it shall be an enclosed structure capable of supporting operations and stress of weather. The APB shall be constructed in accordance with the following figures which are included in Attachment E:

Table IV.A.4	
Drawing Number	**Title**
24852-RD-P1-APB-P0030	Agent Processing Building, General Arrangement, Redesign, Plan
24852-RD-A2-APB-A0031	Agent Processing Building, Exterior Elevations
24852-RD-P1-APB-P0001	Agent Processing Building, Equipment Location Plan – Area 2D
24852-RD-P1-APB-P0002	Agent Processing Building, Equipment Location Plan – Area 2G
24852-RD-P1-APB-P0003	Agent Processing Building, Equipment Location Plan – Area 2H
24852-RD-P1-APB-P0004	Agent Processing Building, Equipment Location Plan – Area 2J

Table IV.A.4	
Drawing Number	**Title**
24852-RD-P1-APB-P0005	Agent Processing Building, Equipment Location Plan – Area 2K
24852-RD-P1-APB-P0006	Agent Processing Building, Equipment Location Plan – Area 2L
24852-RD-DO-000-S0006	Standard Concrete Details, Sheet 3
24852-RD-P1-000-P0030	Plot Plan
24852-RD-DB-APB-S0033-001	Agent Processing Building, Grade Slab Plan, Area 2B – Sheet 1
24852-RD-DB-APB-S0033-002	Agent Processing Building, Grade Slab Plan, Area 2D – Sheet 2
24852-RD-DB-APB-S0033-003	Agent Processing Building, Grade Slab Plan, Area 2G – Sheet 3
24852-RD-DB-APB-S0033-004	Agent Processing Building, Grade Slab Plan, Area 2H – Sheet 4
24852-RD-DB-APB-S0033-005	Agent Processing Building, Grade Slab Plan, Area 2J – Sheet 5
24852-RD-DB-APB-S0033-006	Agent Processing Building, Grade Slab Plan, Area 2K – Sheet 6
24852-RD-DB-APB-S0033-007	Agent Processing Building, Grade Slab Plan, Area 2L – Sheet 7
24852-RD-DB-APB-S0034-001	Agent Processing Building, Grade Slab, Sections and Details, Sheet 1
24852-RD-DB-APB-S0034-002	Agent Processing Building, Grade Slab, Sections and Details, Sheet 2
24852-RD-DB-APB-S0034-004	Agent Processing Building, Grade Slab, Sections and Details, Sheet 4
24852-RD-DG-APB-S0030-001	Agent Processing Building, CMU Sections
24852-RD-DB-APB-S0030-001	Agent Processing Building, Foundation Plan, Sheet 1 of 4
24852-RD-DB-APB-S0032	Agent Processing Building, Grade Slab Design

IV.A.4.a. Munitions Storage Areas: Storage of munitions that have previously had energetic components removed from them occurs in the Munitions Body Storage Building (room number APB-101) located adjacent to the northwestern portion of the APB, and in the Munitions Receiving Room (room number APB-114) within the APB. The munitions will be stored in slave pallets placed on the floor or on gravity conveyors that are two levels high, or will be stored in single-round overpack containers placed within the pallet unit assembly. The area of the Munitions Body Storage Building is approximately 63 feet by 43 feet. The area of the Munitions Receiving Room is approximately 87 feet by 40 ft. The maximum capacity for storing and/or staging in the Munitions Body Storage Building is as follows: 1,920 X 155-mm projectiles, 2,880 X 105-mm projectiles, or 2,880 X 4.2-inch mortars. The maximum capacity for storing and/or staging in the Munitions Receiving Room is as follows: 160 X 155-mm projectiles in, 240 X 105-mm projectiles, or 240 X 4.2-inch mortars.

IV.A.4.b. Munitions Washout System (MWS): Mustard agent in the munitions is accessed, drained, and washed-out with high pressure water in the Munitions Washout System (MWS) Room (room number APB-125). The MWS consists of two parallel processing lines consisting of the following equipment:

Table IV.A.4.a

Equipment Item (Equipment Number)[1]	Description of Equipment	Number of Items per Processing Line	Applicable Drawings	Special Requirements[2]
Manual Loading Lift Assist (MH-B02-0111, MH-B02-0211)	Device used by workers to load munitions onto the Munitions Loading Conveyor.	1	24852-RD-P1-APB-P0001	Wastes may not be stored in the Manual Loading Lift Assist.
Munitions Loading Conveyor with a Burster Detection System (MH-B02-0101, MH-B02-0201)	Conveyor for transfer of munitions from Munitions Receiving and Traveling Area to the MWS Inlet Airlock/Conveyor	1	24852-RD-P1-APB-P0001	Details regarding the burster detection system will be provided in accordance with the compliance schedule, Condition I.J of this permit. Munitions may not be staged for longer than 24 hours on the Munitions Loading Conveyor. The Permittees shall notify the Division if it is necessary to store munitions for longer than 24 hours. Extensions to the 24 hour time limit would be granted only for off-normal situations such as when equipment breaks down or if a leaking munition results in response and decontamination activities that affect MWS operations.

Table IV.A.4.a				
Equipment Item (Equipment Number)[1]	**Description of Equipment**	**Number of Items per Processing Line**	**Applicable Drawings**	**Special Requirements[2]**
MWS Inlet Airlock/Conveyor (MH-B02-0102, MH-B02-0202)	Double gates(and the cascade ventilation system) prevent release of potential hazardous waste constituents from the MWS Room.	1	24852-RD-P1-APB-P0001	Munitions may not be staged for longer than 24 hours on the Munitions Loading Conveyor. The Permittees shall notify the Division if it is necessary to store munitions for longer than 24 hours. Extensions to the 24 hour time limit would be granted only for off-normal situations such as when equipment breaks down or if a leaking munition results in response and decontamination activities that affect MWS operations.
MWS Feed Conveyor (MH-B02-0103, MH-B02-0203)	Transfers munitions from the MWS Inlet Airlock/Conveyor to the Munitions Handling Robot	1	24852-RD-P1-APB-P0001	Munitions may not be staged for longer than 24 hours on the MWS Feed Conveyor. The Permittees shall notify the Division if it is necessary to store munitions for longer than 24 hours. Extensions to the 24 hour time limit would be granted only for off-normal situations such as when equipment breaks down or if a leaking munition results in response and decontamination activities that affect MWS operations.

Table IV.A.4.a				
Equipment Item (Equipment Number)[1]	**Description of Equipment**	**Number of Items per Processing Line**	**Applicable Drawings**	**Special Requirements[2]**
Munitions Handling Robot (MHR) (MJ-B02-0101, MJ-B02-0201)	Heavy-payload, high-performance industrial robot with six axes of motion controlled by a local controller located inside a local control panel. The MHR is equipped with an air-operated end effecter for gripping munitions with sensors to verify that a munition is in its grasp. Robot automatically transfers munitions from the MWS Feed Conveyor to an available Cavity Access Machine (CAM). MHR removes drained and washed munitions from CAM, and transfers it to the drained munitions weigh station on the Munitions Treatment Unit.	1	24852-RD-P1-APB-P0001	The MHR may not store munitions for longer than 24 hours. The Permittees shall notify the Division if it is necessary to store munitions for longer than 24 hours. Extensions to the 24 hour time limit would be granted only for off-normal situations such as when equipment breaks down or if a leaking munition results in response and decontamination activities that affect MWS operations.

Table IV.A.4.a				
Equipment Item (Equipment Number)[1]	**Description of Equipment**	**Number of Items per Processing Line**	**Applicable Drawings**	**Special Requirements[2]**
Cavity Access Machine (CAM) Stations MWS Processing Line #1: (MZ-B02-0101 to 0104 for 155 mm Projectile CAMs) (MZ-B02-0106 to 0110 for 105 mm Projectile CAMs) (MZ-B02-0111 to 0115 for 4.2-inch Mortar CAMs) MWS Processing Line #2: (MZ-B02-0201 to 0204 for 155 mm Projectile CAMs) (MZ-B02-0206 to 0210 for 105 mm Projectile CAMs) (MZ-B02-0211 to 0215 for 4.2-inch Mortar CAMs)	The empty burster wells of 105 mm and 155 mm munitions are punched by a hydraulic ram. Base plates are cut off of 4.2-in mortars. The agent is washed out with high pressure water which then gravity drains to the Washed Agent and Water Surge Drum.	4 for 155 mm campaign 5 for 105 mm campaign 5 for 4.2 inch mortar campaign	24852-RD-P1-APB-P0001 Reserved	The CAM frames shall be constructed of carbon steel conforming to ASTM A 36 requirements coated with a zinc primer followed by a chemical resistant epoxy to be specified in accordance with the compliance schedule, Condition I.J of this permit. All CAM wetted parts (i.e., those parts that may come into contact with agent or wash water during normal operations) shall be constructed of ASTM B 337 titanium, grade 2. Other components of the CAMs shall be constructed of stainless steel (grade 316L) conforming to ASTM A 240 for plates, ASTM A 276 for shapes/bars, ASTM A 269 for tubing, and ASTM A 312 for pipes. Each CAM shall be viewable by a TV camera; operators in the control room will use the cameras to observe operation of the CAM. The CAMs for the 105-mm and 155-mm projectiles shall be equipped with a position sensor to detect the full extension of the punch ram to ensure that the burster well has been collapsed and the agent accessed. For each of the CAMs for the 4.2-inch mortars the cutting and removal of the base plates will be monitored. This will be accomplished by monitoring cutter wheel stroke length and pressure, sensing the discharge of the cut base plate from the CAM, or both.

Table IV.A.4.a				
Equipment Item (Equipment Number)[1]	**Description of Equipment**	**Number of Items per Processing Line**	**Applicable Drawings**	**Special Requirements[2]**
Munitions Reject Table (MH-B02-0110, MH-B02-0210)	Holds munitions that failed to be successfully washed out by the CAM	1	24852-RD-P1-APB-P0001	Stores a maximum of four (4) 155-mm projectiles or a maximum of six (6) 105-mm projectiles or a maximum of six (6) 4.2-inch mortars. The PLC will count munitions placed on the reject table and set off an alarm in the Control Room when the Munitions Reject Table is full. Final design details, including engineering drawings, regarding the Munitions Reject Tables shall be provided in accordance with the compliance schedule, Condition I.J of this permit.
Base Plate Collection Bucket	Collects and stores base plates that have been cut off of the 4.2-inch mortars by the CAMs.	4 (for the 4.2-inch mortar campaign only)	No drawings of this equipment have been provided.	Each Base Plate Collection Bucket stores a maximum of 25 base plates.

Table IV.A.4.a				
Equipment Item (Equipment Number)[1]	**Description of Equipment**	**Number of Items per Processing Line**	**Applicable Drawings**	**Special Requirements[2]**
Washed Agent and Water Surge Drum (MV-B02-0101, MV-B02-0201)	Horizontal 140 gallon storage tank with 2:1 semi-elliptical ends. 2 ft inside diameter. 6 ft length (tangent-to-tangent).	1	24852-RD-P1-APB-P0001	Each tank shall have a design pressure of 14.9 psig / -6 psig and a design temperature of 150ºF. Each tank shall be equipped with a pressure safety valve set at 13.8 psig and a vacuum relief valve set at -71.8 inches of water. Each tank shall be equipped with high-high-level alarms (set at no higher than 20 inches above the bottom of the vessel) that visually and audibly alert operators in the control room. A high liquid level (HLL) switch shall be installed in each of these tanks (set at 16 inches above the bottom of the vessel) which will start the Washed Agent and Water Booster Pump assigned to the respective tank. A high-high liquid level (HHLL) switch shall be installed in each tank (set at 20 inches above the bottom of the vessel) which will close the isolation valves on the high-pressure wash water supply to the CAMs. Each tank shall be designed and fabricated in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section VIII, Division 1. Each of these tanks shall be fabricated of 3/16-inch titanium, grade 2.
Washed Agent and Water Booster Pump and Spare (MP-B02-0101A/B, MP-B02-0201A/B)	Air-driven, double-diaphragm and double-acting.	2	24852-RD-P1-APB-P0001	Each pump shall be piped in parallel with its spare. The components of each pump that may contact hazardous waste shall be constructed of materials compatible with those hazardous wastes.

Table IV.A.4.a				
Equipment Item (Equipment Number)[1]	**Description of Equipment**	**Number of Items per Processing Line**	**Applicable Drawings**	**Special Requirements[2]**
Piping and other ancillary equipment		Not Applicable	24852-RD-P1-APB-P0001	Ancillary hazardous waste piping shall be titanium, grade 2 with a 1/16 inch corrosion allowance and designed in accordance with ASME B 31.3 Category M.

1 For each item, the first equipment number shown is for MWS Processing Line #1 whereas the second equipment number shown is for MWS Processing Line #2, unless noted otherwise.

2 Extensions to the 24 hour time limit would be granted only for off-normal situations such as when equipment breaks down or if a leaking munition results in response and decontamination activities that affect MTU operations

IV.A.4.c. Munitions Treatment Unit (MTU): There are two MTUs of the same design in the APB identified as MTU 1 (MH-B03-0103) and MTU 2 (MH-B03-0203). The MTUs are insulated electric muffle-type ovens equipped with a conveyor that transports the munition bodies and base plates through the MTU chamber. Both MTU 1 and MTU 2 are located within the MTU Room (room number APB-133) with the feed ends (including the drained munition weigh stations) located in the MWS Room. Each MTU has a footprint of approximately 90 feet long by eight (8) feet wide and an overall height of twelve (12) feet. When operating, the MTU heating chamber is maintained at a negative pressure relative to the MTU Room. Exhaust gases from the MTU are vented to the Off-gas Treatment System (OTS) after passing through an OTS filter located on top of the MTU. The OTS filter is fitted with a filter cleaning system as well as a filter bypass line that can be used when maintaining or cleaning the filters. The maximum processing rate for each MTU is 40 155mm projectiles/hr. Treated munitions and base plates continue on a conveyor through a water-jacketed cooling chamber and into a rotary valve that is connected to a paint residue removal system (note: with concurrence from the Director, operation of the paint residue removal system may be suspended if it is determined to be unnecessary during pilot testing). The munitions bodies and base plates are then emptied from the rotary valve onto a discharge conveyor that transfers them to a second rotary valve. The second rotary valve discharges the munitions bodies and base plates out of the APB and into a discharge chute.

There will be a Munition Weigh Station before each MTU that will serve to weigh the munitions to ascertain whether the munition in question contains a maximum 5% heel by weight per the MPHRA. If 5% is reached, the munition must be rejected and not be sent through the MTU. Details, including operation specifics, and a typical as-built drawing of a station will be provided in accordance with the compliance schedule, Condition I.J of this permit. Munitions may not be staged for longer than 24 hours at each of the weigh stations. Extensions to the 24 hour time limit would be granted only for off-normal situations such as when equipment failure or breakdown occurs or if a leaking munition results in response and decontamination activities that affect MTU operations.

Each MTU is a pre-manufactured, commercially available, electrically heated oven that shall be constructed as described in the vendor supplied drawing(s) to be provided in accordance with

the compliance schedule, Condition I.J of this permit. Each MTU shall be designed and constructed to withstand a continuous internal negative pressure of at least 2.25 inches water column. Stainless steel parts in each MTU shall conform to ASTM A269, A276, A 312, and A330. Carbon steel parts in each MTU shall conform to ASTM A36. Nuts, bolts, and other threaded fasteners in each MTU shall conform to ASME B18.2.1, ASME B18.2.2, ASTM A193, and ASTM A194. Metallic components within the treatment chamber of each MTU that could potentially come into contact with Mustard Agent, agent vapor, or other corrosive vapors, other than vent lines, shall be fabricated from 316L or RA330 stainless steel. Vent lines and in-line filter bodies from each MTU shall be fabricated from Hastelloy C.

Metal parts bins (note that munitions coming from MTU will still be considered hazardous waste (K901) until after successful demonstration has been made during RD&D as determined by the Division): Treated munition bodies and base plates are discharged from each MTU into open-top steel bins located beneath dedicated discharge chutes outside the APB. While accumulating treated metal parts, each metal parts bin shall reside within a sound-attenuating enclosure equipped with a ventilation hood. The ventilation hood captures potential smoke, dust and hot air that are pulled through a baghouse dust collector by an exhaust fan before exiting via a discharge air silencer. Design details regarding the bins, the sound-attenuating enclosures, ventilation hoods and baghouse shall be provided in accordance with the compliance schedule, Condition I.J of this permit (note: with concurrence from the Director, operation of the ventilation hoods and baghouses may be suspended if they are determined to be unnecessary during pilot testing).

IV.A.4.d. Agent and Washwater Collection System: The mixture of washwater and agent from the MWS Washed Agent and Water Surge Drums is pumped to the two (2) Agent-Water Separator Tanks. Agent concentrate from the Agent-Water Separator Tanks is pumped to the Agent Hydrolyzer Tanks (described in IV.A.4.e below) for treatment. The water phase in the upper section of the Agent-Water Separator Tanks is known as MWS Wash Water and is pumped to the two (2) MWS Wash Water Collection Tanks. The MWS Wash Water is pumped intermittently to the Agent Hydrolyzer Tanks according to the hydrolyzer recipe to be provided in accordance with the compliance schedule, Condition I.J of this permit. Spent decontamination solution is generated throughout the APB whenever equipment, building surfaces, and

personnel are decontaminated. The spent decontamination solution is collected in sumps located throughout the APB and pumped to one of two Spent Decon Holding Tanks. The spent decontamination solution is then pumped to the Agent Hydrolyzers in accordance with the hydrolyzer recipe. All of these tanks are located in the Toxic Room (room APB-120).

Details regarding these tanks are provided in the following two tables:

Table IV.A.4.c.a: Agent and Washwater Collection System Tanks

Tank Name (Tag ID)	**Agent Water Separators #1 & #2 (MV-B04-0001, MV-B04-0002)**	**MWS Wash Water Collection Tanks #1 & #2 (MV-B04-0104, MV-B04-0204)**	**Spent Decon Holding Tanks #1 & #2 (MV-B05-0101, MV-B05-0201)**
Configuration & Dimensions	Vertical with semi-elliptical top head, conical bottom and internal baffle. 8' inside diameter. 13' 8" high (tangent-to-tangent).	Vertical with semi-elliptical heads. 11' inside diameter. 13' high (tangent-to-tangent).	Vertical with a flat head and a semi-elliptical bottom head. 6' inside diameter. 10' high (tangent-to-face of flange).
Drawings	24852-RD-M6-B04-M0009	24852-RD-M6-B04-M0001, 24852-RD-M6-B04-M0002, 24852-RD-M6-B04-M0004, 24852-RD-M6-B04-M0010	24852-RD-M6-B05-B0021 thru B0036, 24852-RD-M6-B05-M0001 thru M0004.
Minimum Wall Thickness (inches)	shell: 0.25 to 0.313; head: 0.35; cone: 0.375	shell: 0.313; head: 0.491	shell and bottom shell: 0.5; head: 1 ⅜
Capacity (gal.)	5,068	9,123	2,062
Design Pressure	15 psig max. & full vacuum	15 psig max. & full vacuum	15 psig max. & full vacuum
Design Temp.	150 ºF maximum	250 ºF maximum	150 ºF maximum
Pressure Safety Valve Setting	15 psig	15 psig	15 psig
Overfill Prevention[1] (liquid levels are measured from the tank bottom)	HLL (agent HD & HT): ≤ 4.5', level switch closes inlet valve. HLL (water): ≤ 12' 2" HHLL alarm: ≤12' 8"; interlocked to shut off Washed Agent and Water Booster Pumps.	HLL: ≤10' 9" level switch closes inlet valve on operating tank and opens inlet valve to the other MWS Wash Water Collection Tank on standby. HHLL alarm: ≤11'	HHLL alarm: ≤ 8' 9"
Design Codes	ASME Boiler & Pressure Vessel Code, Section VIII, Division 1; ASME B31.3 Category M for piping	ASME Boiler & Pressure Vessel Code, Section VIII, Division 1; ASME B31.3 Category M for piping	ASME Boiler & Pressure Vessel Code, Section VIII, Division 1; ASME B31.3 for piping

Table IV.A.4.c.a: Agent and Washwater Collection System Tanks			
Tank Name (Tag ID)	**Agent Water Separators #1 & #2 (MV-B04-0001, MV-B04-0002)**	**MWS Wash Water Collection Tanks #1 & #2 (MV-B04-0104, MV-B04-0204)**	**Spent Decon Holding Tanks #1 & #2 (MV-B05-0101, MV-B05-0201)**
Material of Construction	Titanium, grade 7 for tank; titanium , grade 2 with a minimum 1/16" corrosion allowance for ancillary piping	Titanium, grade 2 for tank & ancillary piping (minimum 1/16" corrosion allowance for ancillary piping)	Stainless steel (316L) for tank; carbon steel with a minimum ⅛" corrosion allowance for ancillary piping

1 HHLL = High-high liquid level; HLL = High liquid level; alarms shall alert operators in the control room

Table IV.A.4.c.b: Spent Decon Holding Tank Ancillary Equipment Sumps and Sump Pumps			
Sump Tag Number[1]	**Sump Pump Tag Number**	**Drawings**	**Location in APB**
MT-B05-0040	MP-B05-0040	24852-RD-M6-B05-B0023 24852-RD-M5-B05-B0004	MWS room decon air lock
MT-B05-0041	MP-B05-0041	24852-RD-M6-B05-B0023 24852-RD-M5-B05-B0004	MWS room (NW)
MT-B05-0044	MP-B05-0044	24852-RD-M6-B05-B0025 24852-RD-M5-B05-B0004	MWS room (SW)
MT-B05-0045	MP-B05-0045	24852-RD-M6-B05-B0025 24852-RD-M5-B05-B0004	MWS room (NE)
MT-B05-0046	MP-B05-0046	24852-RD-M6-B05-B0026 24852-RD-M5-B05-B0005	MWS room decon air lock
MT-B05-0047	MP-B05-0047	24852-RD-M6-B05-B0026 24852-RD-M5-B05-B0005	Toxic Maintenance Area (TMA) Category A Room
MT-B05-0048	MP-B05-0048	24852-RD-M6-B05-B0027 24852-RD-M5-B05-B0005	TMA decon air lock
MT-B05-0066	MP-B05-0066	24852-RD-M6-B05-B0027 24852-RD-M5-B05-B0005	Toxic Room
MT-B05-0042	MP-B05-0042	24852-RD-M6-B05-B0024 24852-RD-M5-B05-B0004	MWS Room (SE)
MT-B05-0050	MP-B05-0050	24852-RD-M6-B05-B0021 24852-RD-M5-B05-B0004	TMA air lock
MT-B05-0052	MP-B05-0052	24852-RD-M6-B05-B0021 24852-RD-M5-B05-B0004	TMA Category B Room
MT-B05-0051	MP-B05-0051	24852-RD-M6-B05-B0029 24852-RD-M5-B05-B0005	Off-gas Treatment Room
MT-B05-0061	MP-B05-0061	24852-RD-M6-B05-B0034 24852-RD-M5-B05-B0004	Hydrolysate Tank Room

Table IV.A.4.c.b: Spent Decon Holding Tank Ancillary Equipment Sumps and Sump Pumps			
Sump Tag Number[1]	**Sump Pump Tag Number**	**Drawings**	**Location in APB**
N/A	MP-B05-0049	24852-RD-M6-B05-B0028 24852-RD-M5-B05-B0004	TMA Air Lock
N/A	MP-B05-0069	24852-RD-M6-B05-B0028 24852-RD-M5-B05-B0004	MWS Room Air Lock
N/A	MP-B05-0065	24852-RD-M6-B05-B0022 24852-RD-M5-B05-B0004	MWS Room Air Lock
N/A	MP-B05-0055	24852-RD-M6-B05-B0031 24852-RD-M5-B05-B0004	MWS Washout Water Storage Room
N/A	MP-B05-0056	24852-RD-M6-B05-B0031 24852-RD-M5-B05-B0004	MTU Room
N/A	MP-B05-0074	24852-RD-M6-B05-B0036 24852-RD-M5-B05-B0004	MTU Room
N/A	MP-B05-0057	24852-RD-M6-B05-B0032 24852-RD-M5-B05-B0004	MWS Room Air Lock
N/A	MP-B05-0058	24852-RD-M6-B05-B0032 24852-RD-M5-B05-B0004	TMA Air Lock
N/A	MP-B05-0053	24852-RD-M6-B05-B0030 24852-RD-M5-B05-B0004	Glove Box Vestibule
N/A	MP-B05-0054	24852-RD-M6-B05-B0030 24852-RD-M5-B05-B0004	TMA Category C Room
N/A	MP-B05-0062	24852-RD-M6-B05-B0034 24852-RD-M5-B05-B0005	East Corridor
N/A	MP-B05-0070	24852-RD-M6-B05-B0029 24852-RD-M5-B05-B0005	Off-gas Treatment Room
N/A	MP-B05-0075	24852-RD-M6-B05-B0036 24852-RD-M5-B05-B0005	South Corridor
N/A	MP-B05-0063	24852-RD-M6-B05-B0035 24852-RD-M5-B05-B0005	West Corridor
N/A	MP-B05-0064	24852-RD-M6-B05-B0035 24852-RD-M5-B05-B0005	MWS Room Air Lock
N/A	MP-B05-0059	24852-RD-M6-B05-B0033 24852-RD-M5-B05-B0004	Munitions Receiving and Traveling Area
N/A	MP-B05-0060	24852-RD-M6-B05-B0033 24852-RD-M5-B05-B0005	Munitions Receiving and Traveling Area

1 For rows where only sump pump tag numbers are shown, the sumps are considered secondary containment sumps (i.e., they are not lined with steel liners), and only their associated pumps are considered ancillary equipment to the Spent Decon Holding Tank System.

IV.A.4.e. Agent Neutralization System: Both of the Agent Hydrolyzer Tanks are located in the Toxic Room (room APB-120). Hazardous waste treatment of mustard agent (HD and HT) occurs in these reactor tanks. The Agent Hydrolyzer Tanks are insulated with two (2) inches of cellular glass insulation. Each Agent Hydrolyzer Tank shall be equipped with an agitator sized appropriately to thoroughly mix the tank contents such that a homogenous mixture results. The in-line static mixers shall be designed to ensure that the agent processed in the hydrolyzers is in droplet form to facilitate the hydrolysis reaction. The Agent Hydrolyzer Tanks shall be supplied with compressed air to maintain pressure in the reactor when the neutralized hydrolysate is pumped to the Agent Hydrolysate Hold Tanks. Details regarding the Agent Hydrolyzer Tanks are provided in the following table:

Table IV.A.4.d: Agent Neutralization Tank Systems and Agent Hydrolysate Hold Tank Systems

Tank Name (Tag ID)	**Agent Hydrolyzer Tanks #1 & #2 (MV-B04-0102, MV-B04-0202)**	**Agent Hydrolysate Hold Tanks #1 & #2 (MV-B04-0103, MV-B04-0203)**
Configuration & Dimensions	Vertical with semi-elliptical heads. 9' inside diameter. 10' 6" high (tangent-to-tangent). Equipped with an agitator. Equipped with vortex-reducing baffles. Equipped with a recirculation loop containing an in-line static mixer, in-line steam mixer, pH meter, and controls for the neutralization step.	Vertical with semi-elliptical heads. 12' inside diameter. 11' high (tangent-to-tangent).
Drawings	24852-RD-M5-B04-B0002, 24852-RD-M6-B04-M0005, 24852-RD-M6-B04-M0007, 24852-RD-M6-B04-M0020, 24852-RD-M6-B04-M0021, 24852-RD-M6-B04-M0015, 24852-RD-M6-B04-M0003	24852-RD-M5-B04-B0003, 24852-RD-M6-B04-M0013, 24852-RD-M6-B04-M0014, 24852-RD-M6-B04-M0023 24852-RD-M6-B04-M0024
Minimum Wall Thickness (inches)	shell: 0.347; head: 0.412	Shell and heads: 0.75
Capacity (gal.)	4,203	10,363
Design Pressure	50 psig max. & full vacuum	50 psig max. & full vacuum
Design Temp.	350 ºF maximum	250 ºF maximum
Pressure Safety Valve Setting	50 psig	50 psig
Overfill Prevention[1]	HLL alarm: ≤ 6' 8" HHLL alarm: ≤7' 4"	HHLL alarm: ≤10' 3"
Design Codes	ASME Boiler & Pressure Vessel Code, Section VIII, Division 1; ASME B31.3 Category M for piping	ASME Boiler & Pressure Vessel Code, Section VIII, Division 1; ASME B31.3 for piping

Table IV.A.4.d: Agent Neutralization Tank Systems and Agent Hydrolysate Hold Tank Systems		
Tank Name (Tag ID)	**Agent Hydrolyzer Tanks #1 & #2 (MV-B04-0102, MV-B04-0202)**	**Agent Hydrolysate Hold Tanks #1 & #2 (MV-B04-0103, MV-B04-0203)**
Material of Construction	Titanium, grade 7 for tank; titanium, grade 2 or 7 (as specified on Drawings 24852-RD-M5-B04-M0007 and 24852-RD-M6-B04-M0005 in Attachment E) for ancillary piping. Ancillary piping of titanium, grade 2 will have a minimum 1/16" corrosion allowance. Titanium, grade 7 for in-line static mixers and wetted parts of Agent Hydrolyzer Recirculation Pumps. Polytetrafluoroethylene for wetted parts of Agent Concentrate Pumps.	Carbon steel with a minimum ⅛" corrosion allowance for tank & ancillary piping

1 HHLL = High-high liquid level; HLL = High liquid level; liquid levels are measured from the tank bottom; HHLL alarms shall, at a minimum, visually and audibly alert operators in the control room

IV.A.4.f. Agent Hydrolysate Hold Tank System: Both of the Agent Hydrolysate Hold Tanks are located in the Hydrolysate Tank Room (room APB-122). The exteriors of the Agent Hydrolysate Hold Tanks are insulated. Hydrolysate that has been cleared is pumped from the Agent Hydrolysate Hold Tanks to the Agent Hydrolysate 30-Day Storage Tanks located outdoors as shown in Drawing 24852-RD-P1-000-P0030. Hydrolysate has been cleared when HD and HT are not detectable with minimum method detection limits (MDLs) as determined annually as prescribed in 40 CFR 136, Appendix B. MDLs shall be determined as prescribed annually for chemical agents HD and HT in the hydrolysate matrix. Hydrolysate that is not cleared is pumped from the Agent Hydrolysate Hold Tanks to the Agent Hydrolyzers for additional treatment. Details regarding the Agent Hydrolysate Hold Tanks are provided in the table above titled, "IV.A.4.d: Agent Neutralization Tank Systems and Agent Hydrolysate Hold Tank Systems."

IV.A.4.g. Toxic Maintenance Area (TMA): The TMA may be used to sort, segregate, consolidate, store, and treat (via SDU, autoclave) waste generated at PCAPP. It is also used to monitor, sort, segregate, consolidate, package, and store waste that is destined for off-site treatment and/or disposal. In addition, agent-contaminated parts and equipment may be stored, decontaminated, and repaired in the TMA. The TMA is centrally located within the APB and consists of the following four (4) rooms:

TMA Room (Room Number)	Dimensions	Storage Activities Permitted
TMA Category A Room (APB-126)	32 ft x 43.5 ft	Storage of secondary waste
TMA Category B Room (APB-127)	28 ft x 30 ft	Storage of secondary waste
TMA Category B Airlock (APB-137)	13 ft x 28 ft	No storage permitted for greater than 24 hours. The Permittees shall notify the Division if it is necessary to store hazardous wastes for longer than 24 hours. Extensions to the 24 hour time limit would be granted only for off-normal situations such as when equipment breaks down or if a release of agent results in response and decontamination activities that affect TMA operations.
TMA Category C Room (APB-128)	23 ft x 43.5 ft	Storage of secondary waste that has been treated in the SDU or Autoclave Unit.

IV.A.4.h. Supplemental Decontamination Unit (SDU): The SDU is a large convection-type oven that consists of an SDU chamber, a plenum area containing a recirculation fan and electric heater package, pneumatic dampers, main control panel, and operator loading and unloading interfaces. The overall dimensions of the SDU are approximately 18 feet wide, 8 feet deep and 12 feet high. The interior dimensions of the SDU are 12 feet wide, 6.5 feet deep and 9 feet high. The loading side of the SDU consists of three doors that open from the TMA Category B Room. After thermal treatment of hazardous waste is complete, the SDU is unloaded through one or more of the three doors on the unloading side which opens into the TMA Category C Room.

The SDU shall be built into the wall between the TMA Category B Room (room APB-127) and the TMA Category C Room (room APB-128). The SDU waste treatment chamber and heater chamber shall be fabricated as a single unit with a dividing wall between the waste treatment chamber and the heater chamber. The heater chamber shall contain a recirculation fan and heating elements.

The SDU structural supports and interior and exterior housing shall be constructed of 14-gauge 316/316L stainless steel. The SDU shall be designed and fabricated to withstand maximum heating temperatures of 600ºF.

IV.A.4.i. Autoclave Unit: The Autoclave Unit (MZ-B24-0004) thermally treats secondary wastes with steam. The Autoclave is a free-standing unit and includes a heat exchanger, vacuum pump, condensate drum tank, and condensate pump. Vapors and gases from treatment in the Autoclave Unit pass through a condensate drum tank and then are further treated in the Off-gas Treatment System (OTS). The Autoclave Unit is built into the wall between the TMA Category B Room (room APB-127) and the TMA Category C Room (room APB-128). The overall dimensions of the Autoclave Unit (not including ancillary equipment) are approximately 36 inches wide, 84 inches deep, and 90 inches high. The interior dimensions are approximately 26 inches wide, 76 inches deep and 62 inches high. The loading door to the Autoclave Unit is located in the TMA Category B Room. After waste has monitored to verify adequate treatment has occurred, wastes are unloaded from the Autoclave Unit into the TMA Category C Room.

The Autoclave Unit shall be designed and fabricated to withstand full vacuum and for a maximum temperature of 267ºF. The Autoclave Unit shall be designed and fabricated in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section VIII, Division 1. The interior chamber of the Autoclave Unit shall be fabricated of Hastelloy C-276. Ancillary hazardous waste piping for the Autoclave Unit shall be, designed in accordance with ASME B 31.3 Category M. The vent associated with the Autoclave Unit shall have a minimum 1/8-inch corrosion allowance.

IV.A.5. APB and ERB Process Air Pollution Control System

IV.A.5.a. Process off-gas and vapors from the APB will be vented through an air pollution control system referred to as the Off-gas Treatment System (OTS). The OTS treatment train consists of the MWS vent blowers, an oxidizer preheater, a bulk oxidizer, a venturi quencher/packed column tower, off-gas reheater, and OTS blower. Follow-on filtering of the OTS treated flow then occurs at the agent filter area. The primary purpose of the OTS is the thermal treatment of the process off-gas (mustard agent) in the bulk oxidizer through high-temperature residence, and further control of

acid gases through contact gas absorption and neutralization in the venturi wet scrubber in association with the packed-bed tower and mist eliminator. It is anticipated that approximately 97% of the mustard agent in the off-gas stream will be treated by the OTS with the remainder to be controlled by the AFA. The gaseous feed to the OTS consists of flow from the vent header system originating from the MWS agent and wash water surge drums lines 1 and 2, MTUs 1 and 2, APB agent hydrolysate hold tanks, treaty sampling station glove box, SDUs 1 and 2, autoclave condensate drum, Agent Neutralization System, and spent decon holding tanks. The design of the OTS also quenches (provides temperature reduction), neutralizes acid gases, and removes particulates. Further separation capacity to adsorb residual mustard agent from the OTS is provided by the agent filtration area (AFA) as a follow-on step in the air pollution control equipment train. The OTS will be constructed of materials compatible with the intended use to prevent leaks and releases through corrosion or other means. The APB Cascade Ventilation System joins the OTS flow downstream of the OTS blower and the ERB Cascade Ventilation component joins the combined flow at the common manifold leading to the AFA. The Cascade Ventilation System is described in part IV.A.6 of this section. Locations of the OTS and AFA are depicted on drawing 24852-RD-P1-000-P0030 - Plot Plan.

The piping for the OTS system will include two intermediate sampling ports, one prior to the bulk oxidizer and one immediately after the scrubber tower but prior to the OTS preheater, that will be designed and installed by the Permittees to allow for continuous monitoring during pilot-testing and other times of APB process off-gas flow. Sampling methods and frequency for hazardous constituents including agent shall be submitted to the Division for approval 180 days prior to hazardous waste processing in accordance with the Monitoring Plan per Permit Condition I.J.

IV.A.5.a.1. MWS Vent Blowers

A blower with spare in the toxic room will provide motive force for venting process-related vapors and off-gas from the washed agent and water surge drums and shall be constructed as detailed on Process Flow Diagram Off-gas Treatment System, number 24852-RD-M5-B20-B0001.

IV.A.5.a.2. Oxidizer Preheater

The oxidizer preheater, serves to supply heating to boost temperature of the gaseous flowstream to $>1050^0$ F prior to entering the bulk oxidizer and shall be constructed as detailed on Process Flow Diagram Off-gas Treatment System, number 24852-RD-M5-B20-B0001.

IV.A.5.a.3. Bulk Oxidizer

The bulk oxidizer will provide the majority of the high temperature treatment residence time and maintain temperature following preheating of the process off-gas. The bulk oxidizer shall be constructed as detailed on Process Flow Diagram Off-gas Treatment System, number 24852-RD-M5-B20-B0001.

IV.A.5.a.4. Venturi/Scrubber Tower

Following the bulk oxidizer, the flow will pass to the venturi/ scrubber tower, the first stage consisting of a variable throat venturi to provide gas quenching to $\leq 200^0$ F and differential pressure control prior to the scrubber. The packed-column scrubber is of countercurrent flow design with the gas input from the venturi entering below the packed bed and rising upward through the packed bed. Process water will be sprayed onto a mist eliminator above the packed portion of the vessel to remove large mist droplets from the pad. A second spray consisting of scrubber recirculation liquid will be sprayed downward on top of the packed bed to remove SO_2. HCl, and Cl_2 from the gas. The liquid collected in the scrubber sump will be supplemented with process water to control the liquid level. The sump liquid is run through a strainer filter at the suction of a recirculation pump, cooled, and injected with 25 % by weight caustic (NaOH) solution to control the pH, and is recirculated back to the scrubber tower. Liquid blowdown will be pumped by the recirculation pump to the spent decon holding tanks. The gas flow exiting the top of the scrubber will be reduced in temperature and is piped to the bulk oxidizer. The venturi quencher/packed-column air scrubber tower inputs, outputs, and associated equipment are detailed on Process Flow Diagram Off-gas Treatment System, number 24852-RD-M5-B20-B0001.

IV.A.5.a.5. Off-gas Reheater

The OTS off-gas reheater will heat the gas a maximum of 15^0 F, prior to being pulled by the OTS blower (equipped with a spare blower), to the agent filtration area. The reheater serves to reduce

relative humidity to prevent condensation upstream of the OTS blowers and shall be constructed as detailed on Process Flow Diagram Off-gas Treatment System, number 24852-RD-M5-B20-B0001.

IV.A.5.a.6. OTS Blower w/spare

The OTS Blower will assist the downstream AFA blowers in maintaining negative pressure upstream of the OTS Blower to assist in pulling gases through the OTS towards the AFA.

IV.A.5.a.7. Agent Filtration Area

The agent filtration area (AFA) serves as a pollution control device by filtering agent, VOCs, and particulates from the APB CVS (includes OTS off-gas) and the ERB CVS. The agent filtration area consists of 10 (8 in operation during processing) filter units linked in parallel, each of which is made up of 9 banks. The elements of each filter unit are described below (an agent-sensitive sensor to monitor for breakthrough is located in between the first two carbon units). A minimum of one sulfur-impregnated activated carbon filter will replace one of the carbon filters in each unit to ensure capture of any gas-partitioned mercury that may have been incorporated during agent production as vented through the MTU and SDU vent systems. As an alternative, another equally-effective mercury capture technology may be substituted for the sulfur-impregnated carbon with Division approval. When processing in the APB and ERB, eight of the filter units are active while of the remaining two, one is on standby and the other is on standby or undergoing maintenance. Each of the 10 parallel filter units, consist of the following components in a series arrangement in this respective order:

Table IV.A.5.a - Filtration Train Order, Description, and Design Rationale*

Filter Order	Filter Description	Rationale
1.	Particulate media prefilter	Gross particulate removal
2.	High efficiency particulate air filter (HEPA)	Fine particle removal to protect activated charcoal filters
3.	Charcoal filter (Primary)	Removal of agent vapor and VOCs
4.–8.	Charcoal filters 2-6 (Secondary)	Backup for saturation/breakthrough of first charcoal filter and polishing of gas stream
9.	HEPA filter	Fine particle removal of eroded activated charcoal

*There are 8 filter trains operated in parallel to handle total design flow of 128,000 cfm.

Filter trains shall be arranged as depicted on the following facility drawings:

Table IV.A.5.b – Agent Filtration Area Drawings		
Drawing Number		**Title**
24852-RD-M5-M07-M0001		Air Flow Diagram Filtration Systems HVAC Exhaust Sheet 1 of 5
24852-RD-M5-M07-M0002		Air Flow Diagram Filtration Systems HVAC Exhaust Sheet 2 of 5
24852-RD-M5-M07-M0003		Air Flow Diagram Filtration Systems HVAC Exhaust Sheet 3 of 5
24852-RD-M5-M07-M0004		Air Flow Diagram Filtration Systems HVAC Exhaust Sheet 4 of 5
24852-RD-M5-M07-M0005		Air Flow Diagram Filtration Systems HVAC Exhaust Sheet 5 of 5
24852-RD-P1-000-P0030		Plot Plan

IV.A.5.b. Design and operating conditions for the process off-gas treatment system and agent filtration area are described in Table IV.D.5. The air pollution control system will be constructed in accordance with the Figure 24852-RD-M5-B20-B0001 and those in Tables IV.A.5.a and IV.A.5.b of this permit.

IV.A.6. Cascade Ventilation Systems

The CVS services the ERB and the APB structures. The CVS is a sealed system that incorporates the functions of HVAC, e.g. to condition or heat and cool interior air, while concurrently providing a negative pressure differential as the air is pushed from the exterior through the building envelope and pulled into successively more interior spaces. The CVS is thus basically a push-pull type system, where the air handling units supply pressurized conditioned air from the exterior and AFA blowers further downstream exert a greater flow than the air handlers push to achieve the negative pressures. At this point the air is exhausted to the AFA where it is filtered and vented to atmosphere. Any agent vapor released into ERB and APB will be captured by the filtration trains of the AFA. The CVS system for the ERB and APB is depicted in the drawings found in Table IV.6.

Table IV.6 – APB and ERB Cascade Ventilation System Drawings		
Drawing Number		**Title**
24852-RD-M5-M03-M0001		APB Vent. System HVAC Cascade System – Sheet 1 of 5
24852-RD-M5-M03-M0002		APB Vent. System HVAC Cascade System – Sheet 2 of 5

Table IV.6 – APB and ERB Cascade Ventilation System Drawings		
Drawing Number		**Title**
24852-RD-M5-M03-M0003		APB Vent. System HVAC Cascade System – Sheet 3 of 5
24852-RD-M5-M03-M0004		APB Vent. System HVAC Cascade System – Sheet 4 of 5
24852-RD-M5-M03-M0005		APB Vent. System HVAC Cascade System – Sheet 5 of 5
24852-RD-M5-M02-M0001		ERB Vent. System HVAC Cascade System – Sheet 1 of 5
24852-RD-M5-M02-M0002		ERB Vent. System HVAC Cascade System – Sheet 2 of 5
24852-RD-M5-M02-M0003		ERB Vent. System HVAC Cascade System – Sheet 3 of 5
24852-RD-M5-M02-M0004		ERB Vent. System HVAC Cascade System – Sheet 4 of 5
24852-RD-M5-M02-M0005		ERB Vent. System HVAC Cascade System – Sheet 5 of 5

IV.A.6.a. CVS Components and Function

The CVS is composed of two exterior air handling units for the ERB and three for the APB (one is on standby for each building) that supply the air through cooling/heating coils and gross particulate filters before the air proceeds further towards the interior to a common exhaust manifold for routing to the AFA. The conditioned air is pulled through the buildings by AFA blowers. A negative pressure differential is generated from exterior to interior. Adjustable speed drives on AFA blowers maintain the design flow and negative pressure differential.

Functions provided by the CVS include:

- Assures consistent air flow from areas of lower contamination potential to areas of greater contamination potential by maintaining a negative air pressure gradient from exterior to interior.
- Provides conditioned air to interior spaces of the ERB and APB.
- In conjunction with the AFA, filters agent vapor, VOCs, and particulates.

In accordance with the negative air differential, various ERB and APB interior building areas have been categorized according to the potential for contamination as follows:

- Category A - High probability of agent contamination: negative pressure toxic environment, with potential for liquid agent release and assumed to be contaminated with agent vapor

- Category B - Probability of agent contamination: negative pressure toxic environment possibly contaminated with agent vapor.

- Category C - Low probability of agent contamination: negative pressure work area with potential inadvertent agent vapor release.

- Category D - Unlikely to experience agent contamination: work area with ambient pressure condition.

- Category E - Maintained free of agent contamination, with exception of a major event: ambient condition work area under positive pressure.

The order of classification under the cascade system for negative pressure areas will be Category C air (least negative) cascades to Category B which cascades to Category A, the most negative. Thus, Category C areas may cascade to A or B areas, Category B areas cascade to A areas and then to the AFA or alternatively Category B areas may be routed directly to the AFA. Category D areas are at ambient, while Category E areas are under positive pressure conditions. Engineering controls to maintain these conditions will include airlocks, differential pressure or airflow gauges with alarms linked to the Facility Control System (FCS), control room monitoring of system.

IV.A.6.b. Operating conditions for the cascade ventilation system air pollution control system are described in permit conditions IV.D.5.

IV.A.7. Other Air Pollution Control System Components

- Munitions Cooling Area – Baghouse system (X2, 1 per MTU) to collect particulates, specifically paint chip debris. Each baghouse (MK-B03-0032 and MK-B03-0033) is rated at 5,000 acfm, with 99% @ 0.5 microns efficiency. The design incorporates air inlet and air discharge silencers with centrifugal supply fans (MA-B03-0103/0203) and centrifugal exhaust fans (MA-B03-0019/0020) operated in a push/pull position inlet/exhaust as shown on Drawing 24852-RD-M5-B03-B0006.

- Immobilized Cell Bioreactor Off-gas Treatment System – The purpose of this system is to prevent the release of hazardous waste constituents to the environment and to control odors. There are six off-gas treatment system modules or filtration treatment trains, one for each bioreactor module with a separate exhaust stack for each. Each

Bioreactor OTS module will be as designed on Drawing 24852-RD-M5-B11-B0001 - Process flow diagram Bioreactor Off-gas Treatment. A typical bioreactor OTS module will receive vented off-gas at 12.34 psia and 80^0 – 100^0 F which is ducted to two iron sponge absorbers (to remove organic and sulfurous vapors, e.g. odor control) rated at 10 gpm, 20ft head with a 0.5HP motor operated in parallel (condensate liquids generated from the irons sponge units are pumped to the water recovery system) with a sensor immediately downstream to monitor reduced sulfide compounds including hydrogen sulfide. The off-gas is next heated by the ICB off-gas heater rated at 244,00 BTU/hr. The filter train continues with a prefilter, two activated carbon filters, and a HEPA filter operated in series. Each filter will have a design rating of 7,517 acfm. Each filter and iron sponge unit will be instrumented and monitored for pressure drop. The final unit in the treatment train is a blower (7,517 acfm design flow @ 43" w.c. 75HP motor) operating in suction-mode to pull the treated off-gas to the stack for discharge. The blower inlet design temperature range is 110^0 to 115^0 F with normal operation of 110^0 F. The discharge design temperature range is 132^0 to 137^0 F with a normal of 132^0 F.

- 30-Day Hydrolysate Tank Head Space Organic Vapor/Odor Control – The three hydrolysate tanks' head space will be vented to common manifold piping and then to two vent carbon filters arranged in parallel (one on-line and one in standby). Each carbon filter is design-rated for 15 psig @ 250^0 F with a capacity of 4800 pounds of activated carbon. Following these filters will be another activated carbon filter of the same rating and capacity as the previous two filter units. The head space gases, filtered for organic hazardous waste constituents and sulfurous vapor control e.g. odors, will then be vented to a single exhaust point. The piping to and from the filters will be heat traced. There will be three 1 inch sample ports provided as indicated on Drawing 24852-RD-M6-B04-M0025 P&ID for the Agent Collection and Neutralization Hydrolysate Vent Filtration which also provides the design arrangement as described here. Drawing 24852-RD-M5-B04-B0003 Process Flow Diagram Agent Collection and Neutralization System Hydrolysate Hold/Storage depicts the general arrangement of the filters and tanks. The Permittees will be responsible for controlling the release of hazardous waste constituents and odors to the environment that may emanate from processing waste.

- Munitions Service Magazines – A filtration system will be designed, installed, and operated to control any emissions from the stored waste munitions. Details of the filtration system and engineering controls for the MSM vents will be provided in accordance with the compliance schedule, Condition I.J. of this permit.

IV.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

IV.B.1. The following table lists the approved waste codes for staging, treatment and/or storage in the MSMs and the MUC, the ERB, the Energetic Transfer Corridor and ESM, and the APB:

Building/Unit Description	D – Codes	K – Codes, P-Codes
MSMs, MUC, and ERB	D003, D004-D011, D022, D028, D030, D034, D039, D040, D043	K901 and K902 P909, P910
Energetic Transfer Corridor and ESM	D003, D004 thru D011, D030	K901 or K902 not allowed. Only non-agent-contaminated energetic components
AGV Corridor	D002 thru D011 inclusive, D022, D028, D034, D039, D040, and D043	K901, P909, P910
APB Permitted Rooms not specified elsewhere in this table	D002 thru D011 inclusive, D019, D022, D028, D034, D039, D040, D043	K901, K902, P909, P910
APB – MWS System	D002 thru D011 inclusive, D022, D028, D034, D039, D040, and D043	K901, P909, P910
APB – MTU System		
APB – Washed Agent and Water Surge Drums		
APB – Agent Water Separators		
APB – MWS Wash Water Collection Tanks	D002, D004 thru D011 inclusive, D022, D028, D034, D039, D040, and D043	K901, P909, P910
APB – Agent Hydrolyzers	D002 thru D011 inclusive, D018, D019, D022, D028, D034, D039, D040, and D043	K901, P909, and P910
APB – Agent Hydrolysate Hold Tanks	D002, D004 thru D011 inclusive, D018, D019, D022, D028, D034, D039, D040, and D043	K901
APB – Spent Decon Tanks	D002, D004 thru D011 inclusive, D019, D022, D028, D034, D039, D040, and D043	K901
APB – SDU	D002, D004 thru D011 inclusive, D019, D022, D028, D034, D039, D040, and D043	K901, K902, P909, P910
APB – Autoclave		

Building/Unit Description	D – Codes	K – Codes, P-Codes
Outside ABP – Treated Metal Parts Collection Bin/Storage Area	None	K901

IV.B.2. The Permittees may manage waste as newly generated waste in generator accumulation areas in accordance with 6 CCR 1007-3 Section 264.34, as recyclable materials in accordance with 6CCR 1007-3 Part 267, as universal waste in accordance with 6 CCR 1007-3 Part 273, and/or as used oil in accordance with 6 CCR 1007-3 Part 279. Otherwise, the Permittees are prohibited from staging, treating or storing any hazardous wastes identified by wastes codes which are not included above at the facility. The Permittees are prohibited from using bleach, any other halogenated substances, or other substances found to negatively impact the Near Real Time Monitors (the "MINICAMs") in any building or structure that has Mustard Agent monitoring sensors, including the ERB, APB, and AGV Corridor. Wastes containing halogenated substances, including bleach are prohibited from any building or structure containing Mustard Agent monitoring sensors. Halogenated substances may not be stored or used within a 100 foot radius of the air supply intakes to these buildings.

IV.B.3 The Permittees may manage the waste identified below, with the exception of halogenated substances or wastes prohibited from buildings specified in IV.B.2 in accordance with the regulations identified in Condition IV.B.2. Otherwise, except for trace amounts, the Permittees are also prohibited from treating or storing the following other types of wastes at the PCAPP facility:

IV.B.3.a. Waste hydraulic fluid,

IV.B.3.a. Waste oil,

IV.B.3.c Waste halogenated liquids not otherwise specified,

IV.B.3.d Waste organic liquids not included in IV.B.1.

IV.B.4 Treatment or storage of hazardous waste that satisfies the criteria established in 6 CCR 1007-3 Part 261.23(a)(7) or (8) is prohibited in the APB, the 30-day hydrolysate tanks and BTA/BRS units.

IV.C. SECONDARY CONTAINMENT AND AIR POLLUTION CONTROL SYSTEM DESIGN REQUIREMENTS

IV.C.1. The MSMs and MUC will be constructed with concrete containment floors that are coated with a chemically resistant coating that will be provided in accordance with the compliance schedule, condition I.J. of this permit. The MUC is a transportation corridor between the MSM and the ERB. The ESM is also a four walled building with a concrete floor. The MSMs, ESM and MUC will be constructed in accordance with design information specified, including doors, vents, general layout, and materials of construction, as shown in Table IV.A.l.

IV.C.2. The ERB floor will be constructed to meet Subpart DD design requirements with underlying concrete footings supporting steel reinforced concrete slabs selectively coated with agent-resistant material in accordance with figures and other specifications as contained in Table IV.C.2 as depicted in this section. These footing and slabs will be capable of supporting the anticipated loadings of all operations and equipment. The coatings will be rigorously inspected and maintained and the concrete with cracks will be being promptly repaired and recoated as specified in the Inspection Plan to be submitted in accordance with Permit Condition I.J. of this Permit. Additionally, the Permittee is required to provide a detailed listing of specific coating repair, reporting, and inspection elements for inclusion in Condition I.J. Coatings will be applied as according to Enhanced Reconfiguration Building Finish Schedule Design Requirements Drawing 24852-RD-A5-ERB-A0083 and Specification 24852-RD-3PS-000-A0210. The above coating requirements do not apply to the following rooms in the ERB: ERB-118 and ERB-120 through ERB-134. The ERB will also consist of the above concrete features plus specially reinforced blast resistant walls and ceilings for specified explosives design limits (3.3 lbs.) in the Explosive Containment Rooms. The remaining walls and roof will contain dusts and vapors and be of standard construction being designed for specific stress loadings due to winds, precipitation, and local seismic ratings. A cascade ventilation system with increasingly negative pressure towards the AFA will assure that any vapor or dust generated in the process will be retained and directed to on site treatment systems. The concrete construction work will be completed according to the *Engineering Specifications for Supply of Ready-Mixed Concrete* which identifies acceptance criteria and specifications and the *Construction Quality Assurance Plan (CQAP)* and *Inspection Matrix* that are maintained at the facility and in accordance with the specifications in Attachment F to this permit. The Permittee will be required to maintain records of repairs and releases addressed by 6 CCR 1007-3 Part 264.1101(c)(3) in the Operating Record available for inspection. The ERB is subject to all applicable aspects of 264.1101 Subpart DD.

Table IV.C.2. – ERB Foundations, Slabs, and Sumps Design Drawings

Drawing Number	Title
24852-RD-DO-000-S0006	Standard Concrete Details – Sheet 3

24852-RD-DG-ERB-S0030-015	ERB CMU Sections and Details
24852-RD-DG-ERB-S0030-010	ERB PMD ECR Rebar Arrangement – Sheet 10
24852-RD-DB-ERB-S0030-001	ERB Foundation Plan
24852-RD-DB-ERB-S0032-001	ERB PMD ECR Concrete Outlines – Sheet 1
24852-RD-DB-ERB-S0032-002	ERB PMD ECR Concrete Outlines – Sheet 2
24852-RD-DB-ERB-S0033-001	ERB Grade Slab Plan Sheet 1 of 2
24852-RD-DB-ERB-S0033-002	ERB Grade Slab Plan Sheet 2 of 2
24852-RD-DB-ERB-S0034	ERB Grade Slab Sections
24852-RD-DB-ERB-S0037	ERB Vapor Containment and Reconfiguration Rooms – Grade Slab Plan
24852-RD-DB-ERB-S0041	ERB Vapor Containment and Reconfiguration Rooms - Sections and Details
Base Plan 24852-P1-ERB-P0030	Figure B –ERB Subpart DD Containment
Base Plan 24852-P1-ERB-P0030	Figure E – ERB Flow Diagram
Base Plan 24852-P1-ERB-P0030	ERB Sump Locations
24852-RD-A5-ERB-A0083	ERB Finish Schedule Design Requirements
24852-RD-A1-ERB-A0024	ERB MSM Transfer Corridor Floor Plan Sheet 1 of 3
24852-RD-A1-ERB-A0025	ERB MSM Transfer Corridor Floor Plan Sheet 2 of 3
24852-RD-A1-ERB-A0026	ERB MSM Transfer Corridor Floor Plan Sheet 3 of 3

IV.C.3. AGV Corridor

The AGV corridor is 440 feet in length and 12 feet wide with two turn out stations and a battery charging station. The corridor is constructed with a bermed coated concrete floor and metal side walls and a roof. The AGV corridor will have agent monitoring in accordance with Attachment D. This corridor is designed for the transfer of enhanced–reconfigured munitions to the Agent Processing Building. The Permittee will be allowed to store two pallets of munitions in this area, to allow for emergencies and situations where an AGV becomes inoperable.

AGV Transfer Corridor Specifications

Table IV.C.3 AGV Corridor Design Drawings

Drawing Number	**Title**
24852-RD-DO-000-S0006	Standard Concrete Details – Sheet 3
24852-RD-DB-Y-S0030-004	APB/ERB Transfer Corridor Fdn Plan – Sheet 4
24852-RD-DB-Y-S0070-002	APB/ERB Transfer Corridor Foundation Sections
24852-RD-DB-Y-S0070-004	APB/ERB Transfer Corridor Foundation Sections & Details
24852-RD-A5-AGV-A0081	AGV Material Transfer Corridor Door Schedule
24852-RD-A1-AGV-A0021	AGV Material Transfer Corridor Floor Plans

IV.C.4. Agent Processing Building (APB)

The APB floor will be constructed to meet Subpart DD design requirements with underlying concrete footings supporting steel reinforced concrete slabs selectively coated with agent-resistant material in accordance with Table IV.C.4 of this section. These footing and slabs will be capable of supporting the anticipated loadings of all operations including vehicles and other heavy mobile and stationary equipment. A primary barrier consisting of sloping, coated-concrete floors leading to trench drains and double-lined sumps with monitored annuluses for leak detection will assure containment of free liquids in areas where the potential for liquid agent or agent-derived liquids to be spilled will be managed. Floor coatings will be rigorously inspected and maintained as will the condition of the concrete with cracks being promptly repaired and recoated. The coating will be per the Final Coating Specification that will be provided in accordance with the compliance schedule, Condition I.J. of this permit. The concrete construction work will be completed according to the *Engineering Specifications for Supply of Ready-Mixed Concrete* which identifies acceptance criteria and specifications and the *Construction Quality Assurance Plan (CQAP)* and *Inspection Matrix* that are maintained at the facility and in accordance with the specifications in Attachment F to this permit. . The Permittee is required to provide a detailed listing of specific coating repair, reporting, and inspection elements for inclusion in Condition I.J. Coatings will be applied as according to Agent Processing Building Finish Schedule Drawing 24852-RD-A5-APB-A0085 and Specification 24852-RD-3PS-000-A0210. The above coating requirements do not apply to the following rooms in the APB: APB-102 through APB-111, APB-115 through APB-117, APB-119, APB-121, APB-123, APB-124, APB-129 through APB-133, APB-135, APB-138 through APB-142, and APB-146, APB-148 through APB-168.

The APB will be completely enclosed with walls and roof of standard construction that will be designed for specific stress loadings due to winds, precipitation, and local seismic ratings. A cascade ventilation system with increasingly negative pressure towards the AFA will assure that any vapor or dust generated in the process will be retained and directed to on site treatment systems. The Permittees will be required to maintain records of all repairs and releases addressed by 6 CCR 1007-3 Part 264.1101(c)(3) in the operating record available for inspection. The APB is subject to all applicable aspects of 6 CCR 1007-3, Part 264 Subpart DD.

Table IV.C.4 – APB Foundations, Slabs, and Sumps Design Drawings

Drawing Number	Title
24852-RD-P1-APB-P0030	APB General Arrangement Redesign, Plan
24852-RD-DB-APB-S0033-001	APB Grade Slab Plan Area 2B – Sheet 1
24852-RD-DB-APB-S0033-002	APB Grade Slab Plan Area 2D – Sheet 2
24852-RD-DB-APB-S0033-003	APB Grade Slab Plan Area 2G – Sheet 3
24852-RD-DB-APB-S0033-004	APB Grade Slab Plan Area 2H – Sheet 4

Table IV.C.4 – APB Foundations, Slabs, and Sumps Design Drawings	
Drawing Number	**Title**
24852-RD-DB-APB-S0033-005	APB Grade Slab Plan Area 2J – Sheet 5
24852-RD-DB-APB-S0033-006	APB Grade Slab Plan Area 2K – Sheet 6
24852-RD-DB-APB-S0033-007	APB Grade Slab Plan Area 2L – Sheet 7
24852-RD-DB-APB-S0034-001	APB Grade Slab Sections and Details Sheet 1
24852-RD-DB-APB-S0034-002	APB Grade Slab Sections and Details Sheet 2
24852-RD-DG-APB-S0030-001	APB CMU Sections
24852-RD-DB-APB-S0030-001	APB Foundation Plan Sheet 1 of 4
24852-RD-DB-APB-S0032	APB Grade Slab Design
24852-RD-DB-APB-S0034-004	APB Grade Slab Sections and Details Sheet 4
24852-RD-DO-000-S0006	Standard Concrete Details Sheet 3
Base Plan P1-000-P0030	Figure A RCRA Units (Plot Plan)
Base Plan P1-APB-P0030	Figure C APB
Base Plan P1-APB-P0030	Figure D APB
Base Plan 08-APB-S0033-002	APB Sump Location – Area 2D Sheet 2
Base Plan 08-APB-S0033-003	APB Sump Location – Area 2G Sheet 3
Base Plan 08-APB-S0033-004	APB Sump Location – Area 2H Sheet 4
Base Plan 08-APB-S0033-005	APB Sump Location – Area 2K Sheet 6

IV.C.4.a. Sumps, Floors, and Floor Trenches

Certain sumps as identified in Table IV.A.4.c.b. and integral floor trenches in the APB will be of formed reinforced concrete with appropriate PVC waterstopping and lined, with an open-space annulus for each sump that will be equipped with a liquid detection and monitoring system. Concrete surfaces will be fully coated as indicated by Drawing 24852-RD-A5-APB-A0085 with agent-resistant materials to be specified. Floor trenches will be constructed to slope to their respective sumps at measured final grades of no less than 2%. All exposed concrete surfaces subject to agent contact will be fully coated, including floors, floor trenches, and walls as indicated by Drawing 24852-RD-A5-APB-A0085 and using coating specification 24852-RD-3PS-000-A0210. Concrete floors will slope to floor trenches and sumps at a final measured slope of no less than 1% while concurrently not retaining liquids e.g. ponding. Where secondary containment for liquids is required in the APB, the floors are sloped to trenches and/or sumps. Design details for these secondary containment structures shall meet the requirements of 6 CCR 1007-3, Part 264, Subpart J and are described in section IV.C.4. Additional design details for these secondary containment structures can be found on the drawings listed in sections IV.C.4. and IV.A.4 of this permit and included in Attachment E.

IV.C.4.b. MWS Room Secondary Containment: The MWS Room (room APB-125) secondary containment structure consists of a 36-inch thick reinforced concrete slab with perimeter concrete curbs that are a minimum of six (6) inches high. There are two (2) below-grade pits identified as the East Equipment Pit and the West Equipment Pit within the MWS Room that are also part of the same secondary containment structure. Each of these two pits is 3-feet deep, has an area of 9-feet by 9.5-feet, and has an 18-inch thick reinforced concrete floor. Floors and trenches in the MWS Room (including the two pits) must be sloped towards the sumps at a minimum slope of 1/8 inch per foot. All sumps in the MWS Room shall be lined with continuous leak detection of the interstitial space between the primary liner and the secondary liner (using probes as specified in Compliance Schedule, Permit Condition I.J). The floors and sumps will be coated with a coating approved per the Compliance Schedule, Permit Condition I.J. All voids and cracks shall be filled with an appropriate surfacer material prior to the application of the coating. The coating shall be applied through all joints prior to the application of the joint sealant. PVC water stops shall be installed at all joints within the secondary containment system in the MWS Room. Additionally, all joints within the secondary containment system in the MWS Room shall be filled with an appropriate joint sealant approved per the Compliance Schedule, Permit Condition I.J. All floor-to-wall, wall-to-wall, floor-to-pier, and floor-to-curb intersections shall be coved and reinforced with a ¾-ounce fiberglass mat. The cove shall extend at least two (2) inches onto each intersecting surface. The thickness of the cove shall be a minimum of one (1) inch at the center. The cove shall be applied prior to the application of the secondary containment coating.

IV.C.4.c. Agent Treatment Area (Toxic Room) – Secondary Containment: The Toxic Room (room APB-120) secondary containment structure consists of a 36-inch thick reinforced concrete slab with perimeter concrete curbs that are a minimum of six (6) inches high. Floors in the Toxic Room must be sloped towards the lined trench at a minimum slope of 1/8 inch per foot. The lined trench must be sloped towards the lined sump at a minimum slope of 2%. The sump and trench in the Toxic Room shall be lined with continuous leak detection of the interstitial space between the primary steel liner and the secondary concrete liner (using probes as specified in Compliance Schedule, Permit Condition I.J). The floors, trench, and sump will be coated with a coating approved per the Compliance Schedule, Permit Condition I.J. All voids and cracks shall be filled with an appropriate surfacer material prior to the application of the coating. The coating shall be applied through all joints prior to the application of the joint sealant. PVC water stops shall be installed at all joints within the

secondary containment system in the Toxic Room. Additionally, all joints within the secondary containment system in the Toxic Room shall be filled with an appropriate joint sealant approved per the Compliance Schedule. All floor-to-wall, wall-to-wall, floor-to-pier, and floor-to-curb intersections shall be coved and reinforced with a ¾-ounce fiberglass mat. The cove shall extend at least two (2) inches onto each intersecting surface. The thickness of the cove shall be a minimum of one (1) inch at the center. The cove shall be applied prior to the application of the secondary containment coating.

IV.C.4.d. Hydrolysate Tank Room Secondary Containment

The Hydrolysate Tank Room (room APB-122) secondary containment structure consists of a 24-inch thick reinforced concrete slab with perimeter concrete curbs that are a minimum of twelve (12) inches high. Floors in the Hydrolysate Tank Room must be sloped towards the lined trench at a minimum slope of ⅛ inch per foot. The lined trench must be sloped towards the lined sump at a minimum slope of 2%. The sump and trench in the Hydrolysate Tank Room shall be lined with continuous leak detection of the interstitial space between the primary steel liner and the secondary concrete liner (using probes as specified in the Compliance Schedule, Permit Condition I.J). The floors, trench, and sump must be coated with a coating approved per the Compliance Schedule, Permit Condition I.J. All voids and cracks shall be filled with an appropriate surfacer material prior to the application of the coating. The coating shall be applied through all joints prior to the application of the joint sealant. PVC water stops shall be installed at all joints within the secondary containment system in the Hydrolysate Tank Room. Additionally, all joints within the secondary containment system in the Hydrolysate Tank Room shall be filled with an appropriate joint sealant approved per the Compliance Schedule. All floor-to-wall, wall-to-wall, floor-to-pier, and floor-to-curb intersections shall be coved and reinforced with a ¾-ounce fiberglass mat. The cove shall extend at least two (2) inches onto each intersecting surface. The thickness of the cove shall be a minimum of one (1) inch at the center. The cove shall be applied prior to the application of the secondary containment coating.

IV.C.4.e. Toxic Maintenance Area:

Toxic Maintenance Area (TMA)– Secondary Containment: The Toxic Maintenance Area (rooms APB-126, APB-127, APB-128, and 137) secondary containment structure consists of a 36-inch thick reinforced concrete slab with concrete curbs as depicted on the drawings listed in Table IV.C.4 that are a minimum of six (6) inches

high. The TMA Category A Room (room APB -126) and the TMA Category B Room (room APB -127) are each equipped with a lined trench that shall be sloped at a minimum slope of 2% towards a lined sump. Floors in the TMA Category A Room (room APB -126) and the TMA Category B Room (room APB -127) must be sloped towards the lined trench in the respective room at a minimum slope of 1/8 inch per foot. The floor in the TMA Category B Airlock (room APB -137) must be sloped towards the lined sump in the room at a minimum slope of 1/8 inch per foot. The floor in the TMA Category C Room must be sloped towards the sump in the room at a minimum slope of 1/8 inch per foot. Sumps and trenches in the TMA Category A and B areas shall be lined and equipped at the sumps with continuous leak detection of the interstitial space between the primary steel liner and the secondary concrete liner (using probes as specified in Compliance Schedule, Permit Condition I.J). The floors, trenches, and sumps will be coated with a coating approved per the Compliance Schedule, Permit Condition I.J. All voids and cracks shall be filled with an appropriate surfacer material prior to the application of the coating. The coating shall be applied through all joints prior to the application of the joint sealant. PVC water stops shall be installed at all joints within the secondary containment system in the TMA. Additionally, all joints within the secondary containment system in the TMA shall be filled with an appropriate joint sealant approved per the Compliance Schedule. All floor-to-wall, wall-to-wall, floor-to-pier, and floor-to-curb intersections shall be coved and reinforced with a ¾-ounce fiberglass mat. The cove shall extend at least two (2) inches onto each intersecting surface. The thickness of the cove shall be a minimum of one (1) inch at the center. The cove shall be applied prior to the application of the secondary containment coating.

IV.C.5. RESERVED

IV.D. OPERATING REQUIREMENTS

IV.D.1. The MUC and MSMs and the ESM will be used for waste receiving, waste staging, segregation, characterization, and storage and transfer of treated reconfigured rounds and untreated waste munitions as follows:

IV.D.1.a. Waste characterization activities for the munitions will occur in the ERB. Characterization of agent contaminated components of the munitions will use the following OPP monitoring approach:

IV.D.1.a.1. In the Receiving and Traveling Area, Overpack Pallet Systems (OPPs) will be monitored using MINICAMs per method PCAPP-301 (PCAPP may confirm MINICAM

agent readings using DAAMS per method PCAPP-302).

IV.D.1.a.2. If monitoring is successful (<1.0 VSL (vapor screening level in the WAP), the OPP cover will be removed. The munitions will be removed from the pallet, and the dunnage will be visually inspected for evidence of an agent leak.

IV.D.1.a.3. If no visual indication of leakage is found, the dunnage will be considered releasable to restricted agent workers at PCAPP. Off-site shipment of any wastes which have been cleared to the VSL must occur in accordance with the Waste Analysis Plan in this permit.

If either the monitoring is unsuccessful (> or = 1.0 VSL) or visual inspection indicates a potential leak, the dunnage will be considered potentially contaminated and will be managed in accordance with the Waste Analysis Plan and will be treated in the SDU or autoclave or shipped off-site to a facility permitted to received such wastes.

IV.D.1.b. The MUC will not be used to store hazardous waste. Hazardous wastes may be staged in the MUC in accordance with Condition IV.D.1.f.

IV.D.1.c. Storage requirements in MSMs. Each MSM can store up to a maximum of 2496 munitions or 52 OPPs. One OPP can hold 32-155mm munitions, 48-105mm munitions, 30-105's boxed, or 48- 4.2 inch munitions boxed. Hazardous waste munitions will be stored and staged on pallets in over-pack pallet containers. Typical storage arrangements are shown on Figure F MSM Subpart DD Typical Storage Arrangement located in Attachment E.

IV.D.1.d. Air monitoring requirements in the MSM will be done in accordance with WAP.

IV.D.1.e. Leaking chemical munitions will be overpacked and stored in the igloos permitted for storing leaking munitions.

IV.D.1.f. The MSMs and ERB are connected by way of the MUC. Waste munitions will not be allowed to be staged for greater than 24 hours in the MUC. The MUC will be used to accept waste munitions from the adjacent G-block storage area and transfer them to the MSMs and/or the ERB. The MUC will be designed and operated in accordance with this Permit. The MUC will have adequate engineering controls to prevent liquid and vapor releases to the environment.

IV.D.1.g. The maximum allowed number of munitions to be staged in the corridor between the MSM and the ERB is the equivalent of one OPP for 24 hours.

IV.D.1.h. The MSMs will have carbon filters and adequate engineering controls to prevent liquid and vapor releases to the environment.

IV.D.1.i. Construction will not begin for the MSMs and the ESM until PCAPP has Department of Defense Explosives Safety Board (DDESB) final approval and provided to the Division in accordance with the compliance schedule, Condition I.J. of this permit. The distance between MSMs shall conform to specifications approved by the DDESB.

IV.D.1.j. Waste energetic components will be transferred from the ERB to the ESM through the ESM Corridor.

IV.D.2. The ERB will be used to remove energetic components from the waste munitions and stage the munitions for subsequent treatment in the APB:

IV.D.2.a. Hazardous waste storage and staging of the waste munitions and their associated packaging wastes will occur in the unpack area also known as the receiving and traveling area (RTA) located on the western portion of the ERB. Waste will be staged in areas on the sides of the room and in the center leaving room for access and emergency equipment. For OPPs containing boxed munitions, if the OPP monitoring per Condition IV.D.1.a indicates that there has not been an agent leak, then the OPP is unpacked in the RTA and the fiber tubes containing the munitions are placed individually on one of the two conveyor belts for transfer into the VCRs. In the VCRs, the contents of the fiber tubes are monitored within the Munitions Monitoring Tray (MMT). If monitoring indicates that mustard is not present at or above the MINICAM detection limit and there is no visual evidence of liquid residue contamination, the munition will be transferred to the reconfiguration room and then to an ECR. For munitions not requiring baseline reconfiguration, if the OPP monitoring per Condition IV.D.1.a indicates that there has not been an agent leak, then the OPP is unpacked and the munitions are transferred to a staging area near the ECRs. The maximum OPP capacity for storing and/or staging wastes in the unpack area (RTA) is 16 over packed pallets or 512-155 mm projectile munitions, 768-105 mm projectile munitions (palletized), 480 - 105-mm munitions (boxed), or 768-4.2 inch mortar munitions. Munitions that have been unpacked are transferred to explosive containment rooms to have fuzes and internal bursters removed.

Munitions may also be stored on stage carts in the RTA as long as the maximum number of allowed munitions as specified above is not exceeded.

IV.D.2.b. The munitions will be processed in the reconfiguration rooms (baseline reconfiguration) and treated in the explosive containment rooms (enhanced reconfiguration). The reconfiguration rooms are constructed of reinforced concrete as described in the drawings listed in Table IV.C.2 and installed with a protective chemical coating that is resistant to chemical agent. The ERB will contain two separate reconfiguration rooms.

IV.D.2.c. Reactive energetic components of the hazardous waste munitions will be removed in the Explosive Containment rooms with a Projectile Munitions Disassembly (PMD) miscellaneous treatment unit. One PMD will be located in each of the three explosive containment rooms. The ERB will contain three separate reconfiguration rooms (ECR)s, Room A-1 through A-3, and will have a maximum of six munitions in each ECR at any one time.

IV.D.2.c.1. Explosive containment rooms

IV.D.2.c.1.i. Floor sensors are interlocked with the robot to prevent the robot from operation when the sensors indicate an abnormal condition within the ECR (e.g. personnel in the room). Control logic prevents unscrewing the fuse or nose closure at the NCRS, unscrewing of a booster at the MPRS, and/or removal of a burster at the BRS of NCRS if the associated blast door is open.

IV.D.2.c.1.ii. During ERB hazardous waste operations, the ECRs (Category B areas) will be operated in such a way that the ECRs remain at a more negative pressure than the adjacent ERB Category C areas.

IV.D.2.c.2. PMDs

IV.D.2.c.2.i. The PMD Grippers that hold the munitions will be programmed and are mechanically designed to fail in a closed position (i.e. the robot will not release the munitions in the event of a power failure or other

malfunction.

IV.D.2.c.2.ii. Maximum operating feed rates for the PMDs will be established under the permit modification required under Condition I.J.2.a.ii of the permit.

IV.D.2.c.2.iii. The Permittee shall cease feed to the disassembly line when a mechanical malfunction with the PMD equipment or the controls which would compromise the integrity of the PMD system occurs. Additionally, when waste residue bins, or containers are full and additional waste feeds would cause these receptacles to over flow, the Permittees shall cease feed operations.

IV.D.2.d. Liquids will be removed from sumps within 24 hours.

IV.D.2.e. The ERB will possess a cascading ventilation system that will provide for negative atmosphere control during hazardous waste treatment or storage operations. The cascade ventilation system for the ERB will be constructed and operated in accordance with the drawings in Attachment E and the operating conditions in Section IV.D.5. At a minimum, the ERB will be maintained at negative pressure during hazardous treatment operations. All online HVAC filter units shall be maintained at a negative pressure. The filter vestibules shall be maintained under negative pressure when an adjacent filter unit is open (e.g., for maintenance). These filter unit pressures will be recorded after a filter unit is brought online. The filter vestibule pressures will be recorded when the adjacent filter unit is open. If any of the filter unit readings are found to be positive, agent processing operations within the facility shall cease immediately. If a filter vestibule reading is positive, the associated filter unit should be closed. The HVAC filter units shall be operational at all times when any hazardous waste is being managed. During power upsets, the facility shall follow contingency procedures for maintaining negative pressure.

IV.D.3. Energetics Service Magazine and Associated Corridor

IV.D.3.a. Storage of reactive hazardous waste bursters which have passed a Division approved SMBM screening process for chemical agent, and other hazardous waste energetics that have passed the

monitoring/visual inspection described in Condition IV.D.2.a. All hazardous waste energetics in the ESM must be stored in containers.

IV.D.3.b. Reactive hazardous wastes will be transferred to the ESM through the ESM corridor. Hazardous wastes will not be stored in the ESM corridor.

IV.D.4. APB General Operating Requirements

IV.D.4.a. APB Munitions Storage Areas – Operating Requirements: Waste munitions that have had all the energetic wastes removed from them will be transferred to the APB to the Munitions Body Storage Building and the Munitions Receiving Room. Waste munitions in the Munitions Body Storage Building and the Munitions Receiving Room shall only be stored on slave pallets. Slave pallets shall be stored as shown on Figure G, "APB Subpart DD Typical Storage Arrangement," included in Appendix E of this Permit. "MINICAMs shall continuously monitor the APB Munitions Storage Areas including the Munitions Body Storage Building and additional operating conditions will be provided as part of the Monitoring Plan to be submitted according to Permit Condition I.J.

IV.D.4.b. APB Tank Units

IV.D.4.b.i. The Permittees may not store hazardous waste in permitted tanks that are not compatible with the materials of construction of the affected tank. The Permittees shall not place hazardous wastes in any tank system if the waste could cause the tank, its ancillary equipment, or a containment system to rupture, leak, corrode, or otherwise fail.

IV.D.4.b.ii. Reserved.

IV.D.4.b.iii. If a release occurs from a tank system, the Permittee shall repair the tank system prior to returning it to service. Major repairs shall be certified by a qualified, independent, registered Professional Engineer. The certification shall be submitted to the Director within seven (7) days after returning the tank system to service, and will certify that the repaired system should be capable of handling hazardous wastes without release for the intended life of the system.

IV.D.4.b.iv. The concrete containment systems underlying the permitted

tanks in the APB shall be sufficiently impervious to contain leaks and spills until detected and removed. In addition the Permittee shall maintain a chemical resistant impervious coating on the concrete of the secondary containment, and repair any detected cracks according to the requirements to be provided and approved per Permit Condition I.J.

IV.D.4.b.v. The secondary containment systems for permitted tanks in the APB shall be maintained to allow sufficient capacity to contain the capacity of the largest tank within the respective secondary containment system or 10% of the volume stored in the tank system, whichever is greater.

IV.D.4.b.vi. The Permittee shall comply with the requirements of 6 CCR 1007-3 §264.193 for ancillary equipment of all tank systems.

IV.D.4.b.vii. All spills or leaks at the permitted tank storage units must be cleaned up within 24 hours from when they are detected or in as timely a manner as possible to prevent harm to human health and the environment, if the Permittees can demonstrate to the Division That removal of the released waste cannot be accomplished within 24 hours. Any removed material from the collection systems must be characterized, and if hazardous waste, managed appropriately (i.e., stored and treated according to this Permit, or managed according to the generator requirements of 6 CCR 1007-3, Section 262.34 if applicable).

IV.D.4.c. Munitions Washout Area:

IV.D.4.c.i. All Cavity Access Machines (CAMs) in the Munitions Washout System (MWS) shall be designed to and operated for a minimum washout pressure of 6,000 psig. The minimum flow rates of high pressure wash water shall be ≥ 2 gpm and minimum wash times for each munition shall be ≥ 70 seconds. The MWS shall be operated such that a minimum of 95% of agent including heel is removed from each munition body.

IV.D.4.c.ii. The MWS shall be operated in accordance with the Pilot-Test Plan, provided in accordance with the compliance schedule, Condition I.J of this permit.

IV.D.4.c.iii. Waste munitions may not be stored in the MWS Room or in any component of the MWS for longer than 24 hours except for rejected waste munitions stored in the Munitions Reject Tables, munitions stored on conveyors, CAMS or the robots, and base plates cut off of 4.2-inch mortars which may be stored in the Base-Plate Collection Buckets. The maximum number of waste munitions and base plates that may be stored in the MWS Room at any time are as follows: a maximum of four (4) 155-mm projectiles or a maximum of six (6) 105-mm projectiles or a maximum of six (6) 4.2-inch mortars may be stored on each of the two Munitions Reject Tables; a maximum of 25 of the 4.2-inch mortar base plates may be stored in each of the eight (8) Base-Plate Collection Buckets, and a maximum per MWS line (i.e., on conveyors, held by the MHR, and within the CAMs) at any time within the MWS Room shall be as follows: seven (7) 155-mm projectiles, eight (8) 105-mm projectiles, or eight (8) 4.2-inch mortars. For the MWS Room, munitions may be stored on conveyors, within CAMS, or within the grippers of the robots for longer than 24 hours only in the event of an off-normal situation (e.g., equipment failure or malfunction, or mustard agent release resulting in response and decontamination activities that affect MWS operations) with the notification of the Division as soon as possible but within 24 hours of the onset of the off-normal situation. If the Division does not concur that it is necessary to store waste munitions for longer than 24 hours, the Division shall notify the Permittees and the Permittees shall have 24 hours from the Division's notification to remove the items from the MWS Room and place them in an appropriate permitted storage area.

IV.D.4.c.iv. Free liquids (with the exception of decontamination solutions/rinse water (e.g., from gross level decon of personnel over a trench/sump or non-routine decon of equipment), fire suppression system discharges, steam condensate, and decontamination solutions and rinse water being applied in response to spills or leaks of mustard agent related wastes) shall not be placed on the MWS Room floor or into sumps. Any spill of liquid on the MWS Room floor, trenches, or sumps shall be removed and properly managed as soon as possible but no later than 24 hours from the time of discovery, or in as timely a manner as is possible to prevent harm to human health and the

environment, if the Permittees can demonstrate to the Director that removal of the released waste cannot be accomplished within 24 hours.

IV.D.4.c.v. Washed Agent and Water Surge Drum Tanks: The Washed Agent and Water Surge Drum Tanks may receive only mustard agent drained from munitions, the water used for rinsing out the munitions, spills in the MWS, and flushing associated lines.

IV.D.4.c.vi. Air flow through a CAM and the associated Washed Agent and Water Surge Drum Tank System shall be maintained at a minimum of 50 acfm while a munition is being accessed, drained, or washed within the respective CAM.

IV.D.4.c.vii. The MWS shall be maintained in accordance with the MWS Maintenance Plan provided in accordance with the compliance schedule, Condition I.J of this permit.

IV.D.4.c.viii. Each munition that has been drained and rinsed with water in a CAM shall be weighed at the Munitions Treatment Unit (MTU). The weight criteria to be used for rejecting munitions shall be provided in the Pilot-Test Plan in accordance with the compliance schedule, Condition I.J of this permit.

IV.D.4.d. Agent Treatment Area (Toxic Room)

IV.D.4.d.i. Agent Water Separator Tank System: The Agent Water Separator Tanks may receive only the mustard agent/wash water mixture from the Washed Agent and Water Surge Drum Tanks and rinse material (e.g., line flushing).

IV.D.4.d.ii. MWS Wash Water Collection Tank System: The MWS Wash Water Collection Tanks may receive only the wash water portion from the Agent Water Separator Tanks and rinse material (e.g., line flushing).

IV.D.4.d.iii. Spent Decon Tank System: The Spent Decon Tanks may receive only the following waste streams: spent decontamination solutions and fire suppression discharges collected in sumps in Category A, B, and C areas within the APB, scrubber tower blowdown from the Off-gas Treatment System, rinse material (e.g., line flushing), and autoclave condensate from the Autoclave Condensate

Drum Tank. Halogenated decontamination solutions including bleach are prohibited from use in the APB.

IV.D.4.d.iv. Agent Hydrolyzer Tank System: The Agent Hydrolyzer Tanks may receive only the following waste streams/materials: hot process water, steam, MWS wash water from the MWS Wash Water Collection Tank System, spent decontamination solution from the Spent Decon Tank System, agent concentrate (HD or HT) from the Agent Water Separator Tank System, failed hydrolysate, rinse material (e.g., line flushing), and sodium hydroxide solution (25% NaOH). Agent shall be treated in the Agent Hydrolyzer Tank System in accordance with the following requirements:

IV.D.4.d.iv.(A) No more than ten (10) batches of hydrolysate may be produced per day by the Agent Hydrolyzer Tank System. No more than eight batches per day averaged over a rolling 90-day period may be produced by the Agent Hydrolyzer Tank System.

IV.D.4.d.iv.(B) Treatment of mustard agent (HD or HT) shall not occur within an Agent Hydrolyzer Tank unless storage capacity equal to the volume of hydrolysate to be produced from the Agent Hydrolyzer Tank is available in at least one Hydrolysate Hold Tank.

IV.D.4.d.iv.(C) The amount of mustard agent (HD and HT) concentrate from the Agent Water Separator Tank System treated per batch shall not exceed what is specified in the agent batch treatment recipe provided in accordance with the compliance schedule, Condition I.J of this Permit. The amount of mustard agent (HD and HT) concentrate treated per batch shall not exceed 8.6 % by weight of the total batch solution.

IV.D.4.d.iv.(D) Hot process water and/or steam, MWS wash water, and spent decontamination solution shall be added to the Agent Hydrolyzer Tank and thoroughly mixed using the recirculation pump, and the temperature

shall be adjusted to 175ºF (+/- 5ºF) prior to adding any agent (HD or HT) concentrate.

IV.D.4.d.iv.(E) The temperature of a mustard agent reaction batch shall not exceed 210 ºF within either Agent Hydrolyzer Tank.

IV.D.4.d.iv.(F) When treatment of a batch of agent (HD or HT) is complete, the resulting hydrolysate solution in the Agent Hydrolyzer must be stable at a pH of at least 10 prior to transfer to the Hydrolysate Hold Tank System.

IV.D.4.e. Hydrolysate Tank Room

IV.D.4.e.i. Hydrolysate Hold Tank System: The Hydrolysate Hold Tanks may receive only hydrolysate resulting from treatment of mustard agent (HD or HT) in the Agent Hydrolyzers and rinse material (e.g., line flushing).

IV.D.4.e.ii. Prior to transfer of hydrolysate from any of the Hydrolysate Hold Tanks to the 30-Day Hydrolysate Storage Tanks located outside the APB, the Permittee shall obtain a representative sample of the contents of the Hydrolysate Hold Tank and analyze the sample for mustard agent (HD or HT) in accordance with the WAP, Attachment D. If mustard agent (HD or HT) is not detected, then the hydrolysate may be transferred to the 30-day Hydrolysate Storage Tanks. If mustard agent (HD or HT) is detected, then the hydrolysate shall be transferred back to the Agent Hydrolyzers for additional treatment.

IV.D.4.f. Metal Parts Treatment Area

IV.D.4.f.i. MTU: The MTU may only treat munitions for which agent cavity access has been verified per Table IV.A.4.a (CAM Special Requirements) and agent cavity washout has been verified per Condition IV.D.4.c.i.

IV.D.4.f.ii. If a MTU shuts down, the associated MWS line shall automatically shut down.

IV.D.4.f.iii. The Permittee shall prevent the outflow of any gases from the MTU to the MTU Room. A minimum face velocity of air into the MTU of 130 linear feet/minute shall be

maintained at both the feed and discharge ends of the MTU while the MTU is operating.

IV.D.4.f.iv. Metal parts processed through the MTU shall be thermally treated to a minimum temperature of 1000ºF for a minimum of 15 minutes.

IV.D.4.f.v. Metal parts treated by the MTU shall be properly characterized and packaged into containers for shipment off site.

IV.D.4.g. Secondary Waste Treatment Areas

IV.D.4.g.i. Supplemental Decontamination Unit: The Supplemental Decontamination Unit (SDU) shall receive only solid-phase secondary waste streams contaminated with residual amounts of mustard agent (HD or HT) for thermal treatment. Ignitable materials are prohibited from treatment in the SDU. Additional operational details will be submitted per the Compliance Schedule, Permit Condition I.J.

IV.D.4.g.ii. Autoclave Unit: The Autoclave Unit shall receive only solid-phase secondary waste streams contaminated with residual amounts of mustard agent (HD or HT) for thermal treatment. Additional operational details will be submitted per the Compliance Schedule, Permit Condition I.J.

IV.D.5. PCAPP Pollution Control Operating Conditions

Table IV.D.5. - PCAPP Pollution Control Operating Conditions

Off Gas Treatment System

Component (Equipment Number)	Control Loop Number	Operating Parameter	Range or Number or Condition	Monitor, Record, Alarm
Oxidizer Preheater (ME-B20-0003)		On time availability	Always on when waste is being processed in APB	
Bulk Oxidizer (MK-B20-0003)	2483C	Temp	$\geq 1050^0$ F	M (sensor), R, A
Bulk Oxidizer (MK-B20-0003)	2483C	On time availability	Always on when waste is being processed in APB	
Venturi Quencher (MK-B20-0002)	2545	Temp	$\leq 200^0$ F	M (sensor), R
Scrubber (MK-B20-0002)		On time availability	Always on when waste is being processed in APB	
Scrubber (MK-B20-0002)	2554	Δ Pressure across pack.	$\leq$ 1.25 psi	M, R, A
Scrubber (MK-B20-0002)	2592	pH	Working pH probe and remote monitoring instruments	M,
Recirculation pump (MP-B20-0001 A/B)	2576	Flow	$\geq$ 175 gpm	M (sensor), A
OTS Blower & spare (MA-B20-0001 A/B)	2533	Pressure @ venturi inlet	$\leq$ 11.4 psia	M (sensor), R, A
OTS General		Operation	If waste is being processed in the APB, the OTS must be on and fully functional. Further delineation of operation under all relevant scenarios to be provided per permit condition I.J.	

OTS General		DRE	OTS shall perform at minimum of 97% DRE as determined by monitoring feed upstream of the Bulk Oxidizer and down stream of the packed tower scrubber. See intermediate Treatment Train Monitoring.	
Air Filtration System				
Component (Equipment Number)	**Control Loop Number**	**Operating Parameter**	**Range or Number or Condition**	**Monitor, Inspect, Record**
AFA Filter Units MK-M07-0007 through MK-M07-0016 inclusive		Operation	8 Filter Units are to be in use whenever the AFA is in operation.	This condition and exceptions are to be provided per permit condition I.J.
AFA Filter Units MK-M07-0007 through MK-M07-0016 inclusive		Operation	Two units beyond the 8 in operation will be available for immediate switch-out, e.g. on standby.	Further filter operating conditions to be provided per permit condition I.J.
Filter Units	Same	Operation	During offsite power loss, three filter units will be restored sequentially and must remain fully functional during power loss duration	Further filter operating conditions to be provided per permit condition I.J.
Filter Units	Same	Operation	Operating Conditions	Filter operating conditions under all operating scenarios to be provided per permit condition I.J.

Filter Units	Same	Mercury	Some form of mercury entrainment of which the default will be at least one carbon filter in each filter unit to be sulfur-impregnated. or an equally-effective method to be provided	Details to be provided in the Monitoring Plan per permit condition I.J.
Inlet & exit dampers		Operation	Positions under all anticipated facility operating modes to be provided in the Monitoring Plan per permit condition I.J.	Position of dampers shall be monitored and recorded
AFA Stack	4748	Chemical constituents Mustard Agent	To be determined under compliance schedule per permit condition I.J.	M (sensor: CEM Mustard Agent only), A
AFA Stack		Stack testing: Particulates, acid gases, metals, and other hazardous waste constituents	To be determined including methods under compliance schedule per permit condition I.J.	Qualified third-party stack testing firm
AFA General		Operation	In general, if waste is present within buildings or areas serviced by the CVS and/or the OTS, the AFA will be operating.	

Intermediate Treatment Train Testing

Location	Sample Type	Constituents	Frequency	Comment
Common manifold for APB process off-gas before Bulk Oxidizer	To be provided in Monitoring Plan per permit condition I.J.	Mustard Agent	Operating conditions to be established in Monitoring Plan per permit condition I.J.	To be placed on appropriate drawings per permit condition I.J.

Immediately downstream of OTS blower but before AFA common manifold	To be provided in Monitoring Plan per permit condition I.J.	Mustard Agent	Operating conditions to be established in Monitoring Plan per permit condition I.J.	To be placed on appropriate drawings per permit condition I.J.
Cascade Ventilation System				
Component (Equipment Number)	**Control Loop Number**	**Operating Parameter**	**Range or Number or Condition**	**Monitor, Inspect, Record**
APB and ERB Airlocks		One of two doors closed	Interlocks to prevent both doors on an airlock being opened simultaneously	
Category A, B, and C areas served in ERB, APB, and AGV corridor		Δ Pressure	Permittee must maintain negative pressure gradient and be able to demonstrate at all times with conditions and exceptions to be provided in the Monitoring Plan per permit condition I.J.	M (sensor), R, A
Ventilation Category		**Pressure Differential**	**Minimum ΔP in w.c.**	**Comment**
A (Process) A (Air Lock) B (Process) B (Air Lock) C (Process) C (Air Lock)		ΔP	0.85 0.70 0.55 0.55 0.25 0.25	Differential pressure sensor and remote monitoring w/alarms conditions per permit condition I.J.
MTU Munitions Cooling Area Bag House System				
Bag House X 2 in parallel	MK-B03-0032 & MK-B03-0033	Particulates	Permittee must demonstrate that filtration design will adequately control	Operating conditions and SOPs for inspection to be developed per permit condition I.J.

Bag House X 2 in parallel	MK-B03-0032 & MK-B03-0033	Δ Pressure	Threshold Δ P value for shaking mechanism or maintenance if manual will be provided per Compliance Schedule in condition I.J.	A
30-Day Hydrolysate Tank Head Space Filtration System				
Permittee will control odors from the system by changing out filter medium when odors are detected. Conditions to be provided in Monitoring Plan to be submitted as permit condition I.J.				
Immobilized Cell Bioreactor Off-gas Treatment Filtration System				
Iron sponge absorbers X 2	MK-B11-0011 and MK-B11-0012	Odor Control	Permittee will control odors by maintaining units and changing medium when odors are detected	Conditions to be provided in Monitoring Plan to be submitted as permit condition I.J.
Carbon filter X 2	MK-B11-0015 and Mk-B11-0016	Odor and organic vapor control	Permittee will control odors by maintaining units and changing medium when odors are detected	Conditions to be provided in Monitoring Plan to be submitted as permit condition I.J.
Munitions Service Magazines				
MSMs temporarily store/stage waste munitions prior to transfer to ERB. There are 3.		Filtration system (TBD) – Mustard Agent and other hazardous constituents	Permittee must demonstrate that filtration design will adequately control hazardous constituents. Details to be provided under Monitoring Plan per permit condition I.J.	SOPs for inspection to be developed

M = monitor via sensor as indicated or through inspection
R = record hard data electronic
A = alarm from sensor to control location

Note 1.) All information including above electronic data, written, or otherwise recorded or reported information plus maintenance and inspection records and reports to be part of facility operating record subject to Division inspection. Inspection frequencies are to be determined. Maintenance requirements including frequency schedule and SOPs are to be determined. Reporting requirements due to upsets and other conditions to be sent to Division are to be

determined. SOPs are to be developed for OTS, AFA, and CVS.

Note 2.) On time availability is defined as percent of time equipment in question is in operation when upstream units that feed to that equipment (APB process units for example for OTS) are operating. Equipment availability is to be determined on a monthly basis.

IV.D.6. General operating requirements

IV.D.6.a. The location of each hazardous waste within the facility and the quantity at each location will be recorded in the Operating Record.

IV.D.6.b. Dilution of wastes to achieve Land Disposal Restriction standards is prohibited.

IV.D.6.c. Waste may not remain overnight in process unless it is in a designated treatment or storage area.

IV.D.6.d. Spills of liquid hazardous waste will be cleaned up within 24 hours of their discovery.

IV.E. MONITORING AND INSPECTION

IV.E.1. While the ERB and APB are in hazardous waste operation (inclusive of storage) they must be inspected in accordance with 6 CCR 1007-3, 264.1101(c)(4) and the Inspection Plan to be provided under Condition I.J of this permit.

IV.E.2. After any extended period of time (at least six months) during which the ERB or APB containment building is not in service, the Permittees must obtain a certification from a Colorado Registered Professional Engineer that the ERB or APB has structural integrity. The certification must establish, in particular, that the containment buildings will withstand the stress of the pressure exerted by the types and amounts of waste managed in them. [6 CCR 1007-3, §264.1101(c)(2)]

IV.E.3 The Permittee must record, in the operating record, each time spilled waste or material is removed from any secondary containment system sump in the APB during hazardous waste operation. The record must include an estimate of the amount of waste or material removed, circumstances causing the spill (if known), and a description of cleanup efforts. The procedures for these activities will be specified in the Inspection Plan provided in accordance with the compliance schedule, Condition I.J of this permit. [6 CCR 1007-3, §264.1101]

IV.E.4 Air Monitoring System Requirements

Design location plans for air monitoring detectors for the ERB, APB, and AGV Corridors will be as specified in the drawings in the following Table IV.E.4. Final locations will be determined subject to air flow testing in conjunction with a fully functioning cascade ventilation system (CVS), OTS, and AFA and other normally operating equipment.

Table IV.E.4 – Design Drawings for Interior Agent Monitoring Locations (Preliminary)

Drawing Number	Title
24852-RD-J2-J02-J0002	ERB Agent Monitoring System Location Plan
24852-RD-J2-J02-J0012	MSM Corridor Agent Monitoring System SMPLG/ALM Location Plan
Contained in LAMP*	APB Agent Monitoring System Location Plan

*Drawing showing agent monitoring system locations in APB to be provided per compliance schedule in condition I.J.

IV.F. CONTINGENCY PLAN IMPLEMENTATION

IV.F.1. The Permittee shall implement the Contingency Plan when liquids are discovered in any secondary leak detection sump in the APB and implement the procedures of 264.1101(c). The Contingency Plan will be provided in accordance with the compliance schedule, Condition I.J. of this permit.

IV.F.2. The Permittee shall implement the Contingency Plan whenever unexpected or uncontrolled reactions occur in the APB or ERB which produces toxic or ignitable mists, fumes, dust or gases, extreme heat or pressure, violent reactions, fire, or explosions.

IV.G. CLOSURE

At closure, the Permittee must remove or decontaminate all waste residues, contaminated containment system components (secondary containment sumps, etc.), contaminated subsoils, and structures and equipment contaminated with waste, and manage them as hazardous waste unless 6 CCR 1007-3 §261.3(d) applies. All closure activities must be performed in accordance with the requirements of the Closure Plan provided in accordance with the compliance schedule, Condition I.J of this permit.

IV.H. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

IV.H.1. Reserved

IV.I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

IV.I.1. Reserved

IV.J. TANK INSTALLATION AND INTEGRITY ASSESSMENT REQUIREMENTS

IV.J.1. The Permittee shall insure that proper handling procedures are taken during installation to prevent damage to the tanks and any of their system components in the APB.

The Permittee shall have the tank system inspected by an independent, qualified Colorado registered professional engineer. The engineer shall be trained and experienced in the proper installation of tank systems and/or components. The system shall, at a minimum, be inspected for the following conditions [6 CCR 1007-264.192]

- Weld Breaks;
- Punctures;
- Scrapes of protective coatings;
- Cracks;
- Corrosion;
- Structural Damage;
- Inadequate construction/installation.

If the inspection results indicate that any of the above discrepancies exist, the Permittee shall remedy all such discrepancies prior to placing the tank systems in use. [6 CCR 1007, §264.192(b)]

IV.J.2. System Performance Testing for APB Tank Systems

The Permittee shall test all new tanks and ancillary equipment for tightness prior to placing the system or component in use. If the test indicates that the system is not tight, the Permittee shall perform all repairs necessary to remedy the leak(s) in the system prior to placing the tank system in use. [6 CCR 1007, §264.192(d)]

IV.J.3. Installation Requirements

The Permittee shall ensure the installation requirements of 6 CCR 1007–3, §264.192 are met as follows:

IV.J.3.a. Support - All ancillary equipment shall be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction. [6 CCR 1007-3 §264.192]

IV.J.3.b. The Permittee will provide external corrosion protection for aboveground steel-composition storage tanks consisting of a

concrete pad and/or concrete-construction secondary containment to provide isolation from the corrosion effects from contact with soils and/or groundwater, an exterior coating consisting of an appropriate primer and paint to be maintained for the active life of the facility, an appropriate corrosion allowance in the wall thickness of the steel tanks, and a corrosion surveillance program that will be described in the Inspection and Monitoring Plan to be provided to the Division in accordance with Condition I.J. of the Permit. At a minimum, the Inspection and Monitoring Plan must incorporate internal corrosion protection/inspection elements and methods for the tanks to monitor internal corrosion and wall thickness/erosion. Maintenance and inspection of the tanks, including draining any accumulated water that may be in contact with the base of the tanks, will be conducted within 24 hours of discovery.

IV.J.3.c. Certification – The Permittee shall obtain and maintain in the Operating Record the written statements by those persons required to certify the design of the tank systems and to supervise the installation of the tank systems as described in Permit Condition IV.J.1 of this Permit.

The written statements shall attest that the tank systems was properly designed and installed. Any repairs as noted in Permit Condition IV.J.2 shall also be noted in the written statements. The written statements shall also include the certification statement as required by 6 CCR 1007-3 §100.12.

IV.J.4. A corrosion surveillance program will be used to assess potential corrosion and deterioration of all permitted hazardous waste tanks in the APB. Implementation of this program will be in accordance with the Monitoring Plan that shall be submitted in accordance with Condition I.J. of this Permit.

IV.K. AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS

IV.K.1. The equipment identified in Table IV.J.1 below is subject to the requirements of 6 CCR 1007-3, Part 264, Subpart BB. If any equipment is added at the facility which is subject to the requirements of 6 CCR 1007-3, Part 264, Subpart BB, the Permittee shall identify the equipment in a written letter to the Director prior to its installation. The identification shall meet the requirements of 6 CCR 1007-3, Section 100.41(b)(12).

Table IV.K.1

Location in APB of Equipment Subject to 6 CCR 1007-3, Part 264, Subpart BB	Identification of Equipment Subject to 6 CCR 1007-3, Part 264, Subpart BB on Drawings
MWS Room: downstream of CAMs; upstream of washed agent and water surge drums.	MWS Line 1: Equipment located on AG1 lines on drawings 24852-RD-M6-B02-R0064 and 24852-RD-M6-B02-R0011. MWS Line 2: Equipment located on AG1 lines on drawings 24852-RD-M6-B02-R0071 and 24852-RD-M6-B02-R0023.
MWS Room and Toxic Room: downstream of washed agent and water surge drum; upstream of agent water separators.	Equipment located on AG1 lines on drawings 24852-RD-M6-B02-R0011, 24852-RD-M6-B02-R0023, and 24852-RD-M6-B04-M0009 (does not include vent lines).
Toxic Room: downstream of agent water separators; upstream of agent hydrolyzers (i.e., upstream of the in-line static mixers).	Equipment located on AG1 lines on drawings 24852-RD-M6-B04-M0009, 24852-RD-M6-B04-M0022, 24852-RD-M6-B04-M0019, 24852-RD-M6-B04-M0011, 24852-RD-M6-B04-M0012. [Note: On drawings 24852-RD-M6-B04-M0011 and M0012, only the lines transferring agent concentrate are subject to Subpart BB].
Vent from the agent hydrolyzers	Equipment located on VT lines on drawings 24852-RD-M6-B04-M0007 and 24852-RD-M6-B04-M0005.

IV.K.2. Each piece of equipment to which 6 CCR 1007-3, Part 264, Subpart BB applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment.

IV.K.3. The Permittee shall comply with the design, operational, monitoring and inspection requirements of 6 CCR 1007-3, §264.1054, 264.1056 through §264.1059, and 264.1061 and 264.1062. The Permittee shall monitor and inspect all equipment subject to the requirements of 6 CCR 1007-3, Part 264, Subpart BB identified at the facility and described in the Inspection Plan to be provided in accordance with the compliance schedule, Condition I.J of this permit. The monitoring and inspection will be conducted in accordance with the Inspection Plan to be provided in accordance with the compliance schedule, Condition I.J of this permit and 6 CCR 1007-3, Sections 264.1054 and 264.1056 through 264.1059.

IV.K.4. The Permittee shall comply with the test methods and procedure requirements of 6 CCR 1007-3, §264.1063.

IV.K.5 The Permittee shall comply with the record keeping requirements of 6 CCR 1007-3, §264.1064. If the Permittees determine that compliance with the identification requirements for leaks in 6 CCR 1007-3, § 264.1064(c) presents unacceptable safety risks for workers, the Permittees may propose and request that the Division allow an alternative system for identifying and recording the status of the leak.

IV.K.6. The Permittee shall comply with the reporting requirements of 6 CCR 1007-3, §264.1065.

IV.K.7. The Permittee shall comply with the operating requirements of 6 CCR 1007-3, Section 264.1033 for all closed vent systems and control devices installed to meet the requirements of Subpart BB.

IV.L. AIR EMISSION STANDARDS FOR TANKS

The Permittee shall control air pollutant emissions from each hazardous waste tank in the APB in accordance with the Subpart CC compliance portions of the Inspection Plan to be provided in accordance with the compliance schedule, Condition I.J of this permit, and the standards specified in 6 CCR 1007-3, §264.1084 and §264.1087.

IV.L.1. A tank is exempt from the standards specified in Permit Condition IV.L.3. and 6 CCR 1007-3, §264.1084 and §264.1087 provided that the tank is one of the following:

IV.L.1.a. A tank for which all hazardous waste entering the tank has an average volatile organic (VO) concentration at the point of waste origination of less than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in Permit Condition IV.L.2. The Permittee shall review and update, as necessary, this determination at least once every 12 months following the date of the initial determination for each tank. The initial review shall be conducted within 30 days of the commencement of hazardous waste treatment and storage activities at PCAPP. The reviews shall be documented in the Operating Record.

IV.L.1.b. A tank for which the organic content of all hazardous waste entering the tank has been reduced by an organic destruction method or removal process that achieves any one of the conditions contained in 6 CCR 1007-3, §264.1082(c)(2).

IV.L.1.c. A tank for which all hazardous waste placed in the tank either:

IV.L.1.c.i. Meets the numerical concentration limits for organic constituents, applicable to the hazardous waste, as specified in 6 CCR 1007-3, Part 268 - Land Disposal Restrictions under Table "Treatment Standards for Hazardous Waste" in §268.40; or

IV.L.1.c.ii. Has been treated by the treatment technology established by EPA for the waste in 6 CCR 1007-3, §268.42(a), or treated by an equivalent method of treatment approved by EPA in 6 CCR 1007-3, §268.42(b).

IV.L.1.d. The Director may at any time perform or request that the Permittee perform a waste determination for a hazardous waste managed in a tank exempted from using air emission controls following the provisions of 6 CCR 1007-3, §264.1082(d).

IV.L.2. Waste Determination Procedures

IV.L.2.a. Waste determination procedures to determine average volatile organic (VO) concentration at the point of waste origination:

IV.L.2.a.i. The Permittee shall determine the average VO concentration at the point of waste origination for each waste placed in a tank exempted under the provisions of 6 CCR 1007-3, §264.1082(c)(1) from using air emission controls in accordance with standards specified in 6 CCR 1007-3, §264.1082 through §264.1086 as applicable to each the tank.

IV.L.2.a.ii. The average VO concentration of a hazardous waste at the point of waste origination may be determined in accordance with the procedures specified in 6 CCR 1007-3, §265.1084(a)(2) through (a)(4).

IV.L.2.b. Waste determination for treated waste:

IV.L.2.b.i. The Permittee shall perform the applicable waste determination for each treated waste placed in a tank exempted under the provisions of 6 CCR 1007-3, §264.1082(c)(2) from using air emission controls in accordance with standards specified in 6 CCR 1007-3, §264.1082 through §264.1086 as applicable to each tank.

IV.L.2.b.ii. The average VO concentration of a treated hazardous waste may be determined in accordance with the procedures

specified in 6 CCR 1007-3, §265.1084(b)(2) through (b)(9).

IV.L.2.c. The procedure for determining no detectable organic emissions for the purpose of complying with this section of the Permit shall be conducted in accordance with the procedures specified in 6 CCR 1007-3, §265.1084(d).

IV.L.3. The Permittee shall control air emissions from each of the Tanks in accordance with the applicable provisions of 6 CCR 1007-3, §264.1082, §264.1084 and §264.1087.

IV.L.3.a. The Permittee shall control air emissions in accordance with the Tank Level 1 controls and shall maintain the following management activities:

IV.L.3.a.i. The maximum organic vapor pressure limit for the tank is 76.6 kPa.

IV.L.3.a.ii. The hazardous waste in the tank is not heated by the Permittee to a temperature that is greater than the temperature at which the maximum organic vapor pressure of hazardous waste is determined for the purpose of complying with Permit Condition IV.L.3.a.i.

IV.L.3.a.iii. The hazardous waste in the tank is not treated by the Permittee using a waste stabilization process, as defined by 6 CCR 1007-3, §265.1081.

IV.L.3.b. The Permittee, using Tank Level 1 controls, shall meet the following requirements:

IV.L.3.b.i. The Permittee shall determine the maximum organic vapor pressure for each hazardous waste to be managed in each tank, before the first time the hazardous waste is placed in the tank. The maximum organic vapor pressure shall be determined using the procedures specified in 6 CCR 1007-3, §264.1083(c). Thereafter, the Permittee shall perform a new determination whenever changes to the hazardous waste managed in the tank could potentially cause the maximum organic vapor pressure to increase to a level equal to or greater than the maximum organic vapor pressure specified in Permit Condition IV.L.3.a.i.

IV.L.3.b.ii. The tank shall be equipped and maintained with a fixed roof design meeting the following requirements:

IV.L.3.b.ii.(A) The fixed roof, which is an integral part of the tank, forms a continuous barrier over the entire surface area of the hazardous waste in the tank.

IV.L.3.b.ii.(B) The fixed roof shall be maintained such that there are no visible cracks, holes, gaps, or other open spaces between the roof section joints or between the roof edge and the tank wall.

IV.L.3.b.ii.(C) Each opening in the roof and any manifold system associated with the fixed roof shall be either equipped with a closure device operated in accordance with 264.1084(c) (2) (iii)(A) or connected by a closed vent system that is vented to a control device. The control device shall remove or destroy organics in the vent stream, and it shall be operating whenever hazardous waste is managed in the tank, except as provided below:

IV.L.3.b.ii.(C)(1) During periods when it is necessary to provide access to the tank for performing the activities of Permit Condition IV.L.3.b.ii.(C)(2), venting of the vapor headspace underneath the fixed roof to the control device is not required, opening of closure devices is allowed, and removal of the fixed roof is allowed. Following completion of the activity, the Permittee shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, and resume operation of the control device.

IV.L.3.b.ii.(C)(2) During periods of routine inspection, maintenance, or other activities needed for normal operations, or for removal of accumulated sludge or other residues from the bottom of the tank.

IV.L.3.c. Whenever a hazardous waste is in a tank, the fixed roof shall be intact and each closure device secured in the closed position except as follows:

IV.L.3.c.i. Opening of the closure device is allowed at the following times:

IV.L.3.c.i.(A) To provide access to the tank for performing routine inspection, maintenance or other activities needed for normal operations. Following completion of the activity, the Permittee shall promptly secure the closure device in the closed position.

IV.L.3.c.i.(B) To remove accumulated sludge or other residues from the bottom of the tank.

IV.L.3.c.ii. Opening of the pressure relief device which vents to the atmosphere following filtration through activated carbon, is allowed during normal operations for the purpose of maintaining the tank internal pressure in accordance with the tank design specifications. The device is designed to operate with no detectable organic emissions when the device is in the secured closed position. The settings at which the device opens shall be as established in Permit Condition IV.A.4.

IV.L.3.c.iii. Opening of a safety device, as defined in 6 CCR 1007-3, §265.1081, is allowed at any time conditions require doing so to avoid an unsafe condition.

IV.L.3.d. The Permittee shall inspect the air emission control equipment in accordance with the following requirements:

IV.L.3.d.i. The fixed roof and its closure devices shall be visually inspected by the Permittee, as specified in the Inspection Plan to be provided in accordance with the compliance schedule, Condition I.J of this permit, to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

IV.L.3.d.ii. The Permittee shall perform an initial inspection of the fixed roof and its closure devices on or before the date that the tank accepts hazardous waste. Thereafter, the Permittee shall perform the inspections at least once every year except under the special conditions provided for in Permit Condition IV.L.6.

IV.L.3.d.iii. In the event a defect is detected, the Permittee shall repair the defect in accordance with the requirements of Permit Condition IV.L.5.

IV.L.4. The Permittees shall transfer hazardous waste to a Tank in accordance with the following requirement:

Transfer of hazardous waste to the tank from another tank shall be conducted using a continuous hard piping system that does not allow exposure of the hazardous waste to the atmosphere.

IV.L.5. The Permittees shall repair each defect detected during an inspection performed in accordance with the requirements of IV.L.3.d. as follows:

IV.L.5.a. The Permittee shall make first efforts at repair of the defect no later than 5 calendar days after detection, and repair shall be completed as soon as possible but no later than 45 calendar days after detection except as provided in Permit Condition IV.L.5.b.

IV.L.5.b. Repair of a defect may be delayed beyond 45 calendar days if the Permittee determines that repair of the defect requires emptying or temporary removal from service of the tank and no alternative tank capacity is available at the site to accept the hazardous waste normally managed in the tank. In this case, the Permittee shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank stops operation. Repair of the defect shall be completed before the process or unit resumes operation.

IV.L.6. Following the initial inspection and monitoring of the cover as required by the Permit Condition IV.L., subsequent inspection and monitoring may be performed at intervals longer than 1 year under the following special conditions:

IV.L.6.a. In the case when inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions then the Permittee may designate a cover as an “unsafe to inspect and monitor cover” and comply with all of the following requirements:

IV.L.6.b. Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or to monitor, if required.

IV.L.6.c. Develop and implement a written plan and schedule to inspect and monitor the cover, using the procedures specified in Permit Condition IV.L. as frequently as practicable during those times when a worker can safely access the cover.