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Tooele Chemical Agent Disposal Facility (TOCDF)

Request for a

CLASS 3 MODIFICATION

to the

TOCDF RCRA Permit

Request Number:	TOCDF-A10-03-1092
Request Title:	Install and Operate Area 10 Incinerator
EPA ID Number:	UT 5210090002

For the:

STATE OF UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY(DEQ)

Division of Solid and Hazardous Waste (DSHW)

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1. DESCRIPTION OF CHANGE

This permit modification request proposes to construct and operate a small incineration facility to be located in Area 10 of the Deseret Chemical Depot (DCD) for the purpose of destroying Agents GA and Lewisite (L). The facility will consist of a single, small Liquid Incinerator (LIC) and an associated Pollution Abatement System (PAS), equipment to drain bulk containers, and hazardous waste storage and treatment tanks. The facility is referred to as the Area Ten Liquid Incinerator (ATLIC). If approved, this permit modification will allow the construction and operation of the ATLIC.

This permit modification includes two performance test plans. Permitting the ATLIC requires performance testing (i.e., trial burns) to establish Operating Parameter Limits (OPLs) and demonstrate that the operation of the incinerator results in emissions that comply with the emission standards (i.e., performance standards) for new sources specified in the Hazardous Waste Combustor Maximum Achievable Control Technology (HWC MACT) regulations. Note the new source emission standards that are applicable to the ATLIC are much more stringent (i.e., the allowable emission concentrations are lower) than the standards applicable to the existing TOCDF incinerators.

Background

At the beginning of TOCDF agent operations in August 1996, the DCD chemical stockpile contained 46 percent of the nation's chemical munitions stockpile. The DCD stockpile was comprised of rockets, bombs, artillery projectiles, landmines, mortars, and bulk containers filled with the nerve Agents GB and VX, and the vesicant Agent H [mustard (H/HD/HT)]. The total combined GB, VX, and mustard weight of the initial DCD stockpile was over 13,000 tons [i.e., greater than 26 million pounds (lb)]. According to current plans, the entire DCD stockpile of chemical agent will be destroyed by the last calendar quarter of 2011.

In addition to this initial stockpile, there are four ton containers (TCs) of Tabun (Agent GA, a first-generation nerve agent having similar toxicity as GB), and 10 TCs of Lewisite [a vesicant or blister agent similar to mustard, but containing arsenic]. Furthermore, 10 TCs referred to as "Transparency TCs" remain: they are believed to have once contained Lewisite (L) and to have been emptied and decontaminated. The total combined GA and L agent weight of these additional TCs is approximately 15 tons (about 30,000 pounds).

If approved, this permit modification will allow for the installation and operation of a small incineration facility within the DCD, in Area 10. Area 10 is a fenced and secure area within which are located the bunkers that once stored the DCD chemical agent stockpile. The facility will consist of a single, small LIC and an associated PAS that will be used to destroy the approximately 30,000 lb of Agents GA and L, as well as the decontamination and rinse solutions generated from their processing. It is estimated that it will take less than six months to destroy the GA, and L, and to decontaminate the Transparency TCs.

The installation and operation of an additional incineration system to destroy GA and L will allow the TOCDF to begin closure activities sooner since processing the remainder of the mustard stockpile at TOCDF will occur concurrently with GA/L processing at the ATLIC.

The ATLIC is planned to consist of the Hazardous Waste Management Units (HWMUs) listed in Table 1.

Table 1. ATLIC Hazardous Waste Management Units (HWMUs)

HWMU	Number of Units	Purpose	HWMU Type
Ton Container Glove Box	2	Includes connections to drain GA and L TCs and to backfill and re-drain emptied TCs with acetic acid, nitric acid, and water Drain lines from glove boxes go directly to LIC PCC, or to LCS-Tank-8511, SDS-Tank-8523, or NSF-Tank-8516.	Subpart X Permitted
Lewisite Agent Holding Tank (LCS-Tank-8511)	1	1000-gallon carbon steel tank to hold L drained from TCs	Subpart J Permitted
Spent Decon Holding Tank (SDS-Tank-8523)	1	1000-gallon stainless steel tank to hold decon solution used to decon plant and interior of GA TCs after they are drained of GA. To this tank is also added the water used to rinse the GA TCs. The TC water rinse occurs after the spent decon is drained from the TC. During L processing the water used to rinse L TCs after the acid rinse has been drained is also added to this tank which will also contain spent decontamination solution from L operations	Subpart J Permitted
Nitric Acid Holding Tank (NSF-Tank-8514) (LCS-Tank-8516)	2	Two 1,000-gallon stainless steel tanks to hold spent nitric acid from the rinsing L and Transparency TCs. Nitric Acid at 3 M strength or greater is added to the tank's contents to reduce L concentration to less than the WCL	Subpart J Permitted
Major Spill Collection Tank (LCS-Tank-8534)	1	1000-gallon stainless steel tank to hold spills of agent, SDS, or nitric acid, used instead of a secondary containment sump	Subpart J Permitted
LIC and associated PAS	1	Incinerate L, GA, Spent Decon, and TC rinse water	Subpart O Permitted
ATLIC Non-Regulated Tank and Process Systems			
PAS Blowdown Storage Tanks (PAS-Tank-8551, -8552, -8553)	3	12,000-gallon (each) fiber reinforced plastic tanks used to store Spent Scrubber Brine	Operated as 90 day accumulation tanks
WCL Nitric Acid Holding Tank (PAS-Tank-8569)	1	5,000 gallon fiber reinforced plastic tank to store spent Nitric Acid having a L content of < WCL pending disposal by deep well injection	Operated as a 90-day accumulation tank
Nitric Acid Holding Tank (NSF-Tank-8518)	1	1,000 gallon stainless steel tank to hold Nitric Acid to be used to rinse out L and Transparency TCs. Acid is diluted to 3 M strength for use	Tank holds product, non-regulated storage tank
Ton Container Cutting Machine (Low Clearance Circular Split Frame Pipe Cutter)	1	Machine that cuts decontaminated TCs in half to allow removal of sampling equipment inserted into the TC during past sampling events	The cutting of decontaminated TCs does not meet the RCRA definition of treatment

General Process Description

The ATLIC is designed and will be equipped similar to the TOCDF in that the design includes two Emergency Generators and an associated Uninterruptable Power Supply (UPS) to ensure that agent is not released to the environment during power outages. It is also comprised of multiple Heating, Ventilation, and Air Conditioning (HVAC) fixed-bed carbon filter units to prevent agent emissions exiting the incinerator room and storage tanks. Entries into contaminated areas within the facility are performed using fully-encapsulating suits and supplied air. Near Real Time (NRT) agent monitoring is provided throughout the facility, and on the incinerator and HVAC filter system exhaust stacks. A spare hazardous waste storage tank will be kept in reserve to address major spills within the facility. A process controller automates and monitors the incineration process. Trained operators will manage the incineration process remotely from a Control Center equipped with control consoles; these operators will be able to visually observe operations via a closed-circuit television system. Equipment to drain the bulk containers of their agent fills is also provided.

The LIC, PAS, hazardous waste storage tanks, and bulk container rinse and drain equipment will be housed in a renovated ammunition storage igloo. An enclosure is being added onto the igloo to house the ATLIC PAS.

The ATLIC will only process the 4 TCs filled with Agent GA, the ten TCs filled with L, and up to 10 Transparency TCs that were believed to previously be filled with L and presumed to have been decontaminated, but whose decontamination status is unknown. These "up to" 10 TCs, will be processed similar to the L TCs.

The TCs are intended to be processed by first placing a single TC into one of two glove boxes. The glove boxes are sealed environmental enclosures that prevent the escape of agent vapors to the ambient air within the ATLIC Processing Bay. The air pressure within the sealed glove boxes is maintained negative relative to the ATLIC Processing Bay air pressure by ducting that connects each glove box to the ATLIC HVAC filter system.

The GA TC processing differs slightly from that of the L and Transparency TCs. The GA TC's are processed by placing the TC into the glove box and rotating it so that the two fill and drain valves are aligned vertically. The valves within each glove box can be arrayed to transfer the contents of each TC to the LIC Primary Combustion Chamber (PCC), the Agent Collection Tank, the Spent Decontamination System (SDS) Tank, or the Nitric Acid Holding Tank. The valve located outside each glove box can be arrayed to fill TCs drained of their agent fill with decontamination solution, nitric acid solution, or water. The outside valve can also add regulated air to enhance the draining process by "air padding" the TC and to clear the eductor tubes of the TC.

A process air line is attached to the upper valve, and drain line is attached to the lower valve. The connections are made using specially designed shutoff quick-connect couplers and the valves are then opened. The air added to the TC through the top valve both prevents a vacuum from forming in the TC as the agent is removed and provides additional pressure to assist in draining

the agent. The GA is fed from the TC directly to the LIC PCC.

If plugged valves are encountered, the same air line can be used to unplug the valve(s). If the valve(s) cannot be unplugged using compressed air, a drain lance can be inserted into the TC by removing one of the "blow-out" plugs that are located at the end of the TC opposite the drain and fill valves.

Once emptied of its agent fill, the GA TC is back-flushed with a sodium hydroxide (NaOH)-based decontamination solution. Sufficient decontamination solution is added through both drain and fill valves to fill the TC more than half way with this solution. The TC is then rotated for a predetermined period of time. The rotation of the TC ensures that the solution contacts all of the TCs' interior surfaces. The spent decontamination solution (spent decon) is then drained from the TC to the SDS Tank located in the ATLIC Toxic Area. Once emptied of spent decon, the TC is rinsed by filling it more than halfway with water, rotating the TC and draining the water. This water rinse is repeated at least three times. A sample is collected from the final water rinse and analyzed for agent content.

The TCs will be transferred to off-site Subtitle C Treatment, Storage, and Disposal Facilities (TSDF) when the results of the samples collected from the third or additional water rinses (if required) show an agent concentration of less than the Waste Control Limit (WCL) for the agent being processed. The WCL for Agent GA is 20 parts per billion (ppb). The spent decon and water generated from rinsing GA TCs is transferred to the SDS Tank and treated in the LIC SCC.

Agent L TCs are prepared for draining in the same manner as the GA TCs; the difference in how GA and L TCs are processed involves where the drained agent is transferred and how the interior of the emptied TCs are rinsed and decontaminated.

Agent L TCs are drained in the same manner as GA TCs. The drained L, however, is transferred from the TC to the Lewisite Agent Holding Tank located in the ATLIC Toxic Area. The L accumulates in the tank where it is mixed and sampled prior to being fed to the LIC PCC. Once drained, L TCs are filled more than halfway with a 3 Molar (M) nitric acid solution. The TC is then rotated for a period of time to ensure a thorough rinse. The resulting nitric acid rinsate is transferred to the Nitric Acid Holding Tank, also located in the ATLIC Toxic Area.

Once an L TC is drained of the nitric acid, the L TCs are filled more than halfway with water, rotated, and then drained. This process is repeated at least three times. A sample is collected from the final water rinse and analyzed for agent content. The TCs will be transferred to an off-site Subtitle C Treatment, TSDF when the results of the samples collected from the third (or additional water rinses if required) show an agent concentration of less than the Waste Control Limit (WCL). The WCL for Agent L is 200 ppb. The water generated from rinsing L TCs is transferred to the SDS Tank and treated in the LIC SCC.

The spent nitric acid that accumulates in one of the two of the Nitric Acid Holding Tanks is sampled and screened for L. If the results show the L concentration in the spent acid to be greater than the WCL for L then nitric acid of 3 M strength or greater is added to the tank. The contents

are then circulated and resampled.

When the tank's contents are determined to be less than the WCL for L they are transferred to the less than (<) WCL Nitric Holding Tank located in the PAS Enclosure. This tank is managed as a < 90-day accumulation tank. This tank is dedicated to storing < WCL Spent Nitric Acid pending it being shipped off-site to a Subtitle C TSDF for deep well injection.

Transparency TCs that are determined to be contaminated with L through sample collection or through headspace monitoring results, should the TC be empty, are processed in the same manner as L TCs (i.e., rinse with nitric acid followed by three water rinses). Transparency TCs that are determined not be contaminated with L through headspace monitoring results will receive three water rinses only.

After the series of water rinses is completed, TCs processed at the ATLIC are placed into a permitted container storage HWMU. GA, L and Transparency TCs will be stored until completion of TC rinsing and draining operations after which the glove boxes will be removed from the ATLIC Processing Bay to make room for the TC cutting machine. This machine will cut the decontaminated TCs in half prior to there transfer to an offsite Subtitle C TSDF.

ATLIC and PAS

The incineration system consists of a Primary and Secondary Combustion Chamber (PCC and SCC, respectively), Quench Tower, multiple Packed Bed Scrubber Towers arranged in series, Scrubber Solution Chiller, High-Energy Venturi Scrubber, Chevron-Type Mist Eliminator, Exhaust Re-heater, Powdered Activated Carbon (PAC) Injection System, Baghouse, Fixed-Bed Carbon Filters, and Induced Draft (ID) fan.

The PCC is equipped with a 3,000,000 British thermal units per hour (Btu/hr) natural gas burner, and the PCC hot face is lined with SR-90 alumina brick. Liquid wastes are fed to the PCC through an air atomizing feed nozzle that disperses the wastes into the burner flame. The PCC is maintained at approximately 2,600 °F when burning waste. The wastes to be burned in the PCC are agents GA and L.

The SCC is equipped with a 1,000,000 Btu/hr natural gas burner, and the hot face is lined with Ruby SR brick. The SCC is maintained at approximately 1,900 °F. Exhaust gases entering the SCC from the PCC are cooled by injecting water or spent decon into the SCC through the two atomizing air nozzles located next to the burner. Waste burned in the SCC is spent decon generated from facility maintenance activities, and rinsing and decontaminating the GA TCs. Exhaust gases that exit the SCC flow to the PAS Quench Tower.

The relative size differences between the ATLIC LIC and TOCDF LICs are shown in Table 2.

Table 2. ATLIC and TOCDF LIC Comparison

	ATLIC[a]	TOCDF LIC[b]
Agent Feed Rate (lb/hr)	325	1,208
Spent Decon Feed Rate (lb/hr)	638	1,806
Primary Combustion Chamber Burner Rating (BTU/hr)	3,000,000	14,000,000
Secondary Combustion Chamber Burner Rating (BTU/hr)	1,000,000	8,000,000
Combined Combustion Chamber Residence Time (sec)	> 4.0	2.38
Exhaust Gas Flow Rate (dscfm)	926	3,998

[a]Source is GA/L Area 10 Incinerator Basis of Design and Mass and Energy Balance, Max. Fuel Input Case.

[b]Source is Mustard ATB Report for the LIC, Rev 0, 4 April 2007; Tables 3-1 and 5-11.

The Quench Tower is used to rapidly cool exhaust gases that enter the bottom of the tower at an approximate temperature of 1,900 °F and exit at the top of the tower at a nominal temperature of 185 °F. Process water, which is used for cooling, flows countercurrent to the exhaust gas.

The Packed Bed Scrubber removes acid gases, particulate, and metals from the exhaust gas exiting the Quench Tower. The Packed Bed Scrubber is designed as a series of three separate scrubber towers to minimize the height of this process unit. The three towers are arranged in series, which forces the exhaust gas to flow through each tower. Chilled NaOH scrubber solution flows countercurrent through the Packed Bed Scrubber. The chilled scrubber solution is used to enhance the removal of particulate, particularly arsenic and mercury (Hg), which are contained in Agent L. The chilled scrubber solution contacting the exhaust gas causes the exhaust gas to cool, and the gases and metals that are condensable, including water, drop out of the exhaust gas and collect in a common sump. Each scrubber tower empties into the common sump. The pH of the liquids in the sump is controlled by the addition of caustic solution. Scrubber brine is removed from the scrubber sump based on the sump liquid density. The density of the scrubber solution is controlled by a density meter. Cooled and dried exhaust gas exiting the final Packed Bed Scrubber Tower enters the Manually Variable Throat High-Energy Venturi Scrubber.

The Scrubber Solution Chiller constantly cools the scrubber solution using an air-cooled exchanger and chiller heat exchanger before it is introduced into the top of the packed towers. The air-cooled exchanger is a packaged unit that cools the liquid by forcing ambient air over heat exchanger coils using a set of electrically-driven fans. The chiller heat exchanger is a packaged unit that cools the liquid by circulating chilled liquid over heat exchanger coils. The coolers operate continuously during operation of the LIC PAS.

The outlet of the Venturi Scrubber is connected to a Chevron-Type Moisture Separator. The bottom of the Moisture Separator is sized to slow the velocity of the exhaust gas, which causes entrained moisture to fall into the common sump that also collects scrubber brine from the Packed Bed Scrubbers. The exhaust gas flows upward to the separator discharge. A chevron-type entrainment separator is located at the top of the separation chamber. This ensures against loss of liquid droplets from the separator.

An Exhaust Gas Re-Heater is used to heat the exhaust gas exiting the Moisture Separator above the dew point. It consists of electric heating elements inserted into a section of the exhaust duct between the exit of the Moisture Separator and the inlet of the baghouse. The chilled exhaust gas exits the Moisture Separator saturated with water. Heating the exhaust gas ensures that dry gas (i.e., exhaust gas temperature above the dew point) enters the baghouse, thus preventing plugging of the baghouse fabric filters.

A PAC Injection System injects powdered carbon into the exhaust gas after the gas has been reheated. The activated carbon will be impregnated with sulfur to aid in the removal of Hg. The PAC Injection System consists of a storage unit, rotary feeders, variable-speed volumetric feeder, and a high-pressure transport blower/eductor. Activated carbon is fed automatically from the storage unit into a feed hopper on demand from level controls on the feed unit hopper. A volumetric feeder controls the PAC to an eductor, where it is introduced into the transport air stream. Transport air is provided by a high-pressure transport blower.

The baghouse removes the activated carbon from the exhaust gas. The exhaust gas enters the baghouse below the fabric filter bags, which causes the particulate to form a filter cake on the outside of the bags. The cleaned exhaust passes to the inside of the bag and then out of the baghouse. The filter cake is removed from the bags sequentially by pulses of air. Exhaust gas exiting the baghouse next encounters the Fixed-Bed Sulfur Impregnated Carbon Filter System.

The Fixed-Bed Sulfur Impregnated Carbon Filter System consists of two carbon filters; only one is online at any given time. Each carbon filter consists of a pre-filter followed by a High Efficiency Particulate Air (HEPA) filter, three activated carbon banks, and a second HEPA filter. Sulfur-impregnated activated carbon is used as an additional Hg emission control.

Table 3 provides a comparison of the planned ATLIC PAS to an existing TOCDF LIC PAS.

Table 3. ATLIC/TOCDF LIC PAS Comparison

ATLIC PAS	TOCDF LIC PAS
Quench Tower to provide rapid exhaust gas temperature quench for dioxin emission control. Quenching solution is process water. Acid gases are not removed during this process step. **Process water is used to promote the formation of $HgCl_2$** which is water soluble	Quench Tower to provide rapid exhaust gas temperature quench for dioxin emission control. Quenching solution contains NaOH. About 80 percent of acid gases are removed at this process step
Multiple Series Flow Packed Bed Scrubbers, design reduces scrubber tower height. Scrubbing solution pH is controlled to remove acid gases. Chilled scrubber solution removes condensable organics and metals. Intended to enhance the removal of As and Hg during Lexsite processing. Multiple scrubbers drain to a common scrubber sump	High-Energy Variable Throat Venturi Scrubber. Venturi throat *differential pressure automatically adjusts with changes to settings made* to Induced Draft fan damper position to maintain differential pressure across Venturi throat. Provides additional acid gas removal but primarily removes particulate. Scrubber solution contains NaOH
Scrubber Solution Chiller cools the scrubber solution that is circulated through the Packed Bed Scrubber and Venturi Scrubber to assisted in the removal of condensable organics and metals (i.e., As and Hg)	Single Packed Bed Scrubber, scrubber solution has higher pH than solution flow through Quench Tower and Venturi Scrubber. Packed Bed Scrubber removes any acid gases remaining in exhaust gas after it has passed through the Quench Tower and Venturi Scrubber.
High-Energy **Manually Variable Throat Venturi Scrubber**. Venturi scrubber throat differential pressure is controlled by variable speed drive that adjusts Induced Draft fan revolutions per minute. Venturi throat diameter is set during performance testing and then further closed after testing to ensure differential pressure is maintained at a higher value than demonstrated during testing. Scrubber solution is chilled and pH adjusted to assist in the removal of particulate, condensable organics and metals. Venturi Scrubber sump is separate from common sump shared by Packed Bed Scrubbers	Demister Pad located at the exit of the Packed Bed Scrubber for the purpose of removing scrubber solution entrained in the exhaust gas
Chevron-Type Moisture Separator. Bottom of separator is sized to slow the velocity of the exhaust gas, which allows particulate to separate from the exhaust gas and fall into the scrubber sump. The exhaust gas next encounters the chevron, which removes entrained liquid droplets.	Demister exhaust gases flow from the inside to the outside of the demister candles during which entrained liquid droplets and particulate are removed
Electric Gas Re-heater raises the temperature of the exhaust gas above the dew point to ensure dry gas contacts the baghouse fabric filters to prevent their plugging.	Induced Draft fan maintains negative pressure throughout the incineration system to include the combustion chambers. Draft is controlled by adjusting the damper located before the fan
Activated Carbon Injection System injects pulverized sulfur-impregnated activated carbon into the exhaust gas stream to remove Hg and dioxins	Fixed Bed Carbon Filter System includes process heater, followed by pre- and HEPA filters, followed by two beds of sulfur-impregnated activated carbon, followed by HEPA filter to remove Hg and particulate from exhaust gas before release to the environment
Baghouse; fabric filters in baghouse remove particulate and injected carbon from exhaust gas stream. Condition exhaust gas minimizes maintenance required on downstream Fixed Bed Carbon *Filter System*	Incinerator Specific Exhaust Duct required because TOCDF is an incineration facility composed of four incinerators. Individual exhaust ducts are required to allow each incineration system to be tested independently since each is required to comply with the emission standards
Fixed Bed Carbon Filter System: two filter units, one (which filter serves as a backup) includes pre- and HEPA filters, three banks of sulfur-impregnated activated carbon followed by a HEPA filter. Fixed bed carbon filter in addition to the carbon injection system ensures the incineration system will meet the more rigorous HWC MACT emission standards for new sources associated with mercury and arsenic.	**Incinerator Exhaust Duct Manifold required to direct the exhaust gas from multiple incinerators to the Common Stack**
Induced Draft fan maintains negative pressure throughout incineration system, to include combustion chambers. **Draft is controlled by adjusting the variable frequency drive unit** which powers the Induced Draft fan.	Common Stack serves as the final compliance point for the TOCDF facility incinerators in regards to agent emissions. **Total flow of all four systems is in excess of 20,000 dry standard cubic feet per minute.**
Exhaust Stack in which exhaust gas sample ports are located for CEMS, MINICAMS, and performance test exhaust gas samples. **Total flow is approximately 900 dry standard cubic feet per minute.**	

Bold font denotes difference between ATLIC PAS and existing TOCDF LIC PAS

Tank HWMUs

Lewisite Agent Holding Tank

The Lewisite Agent Holding Tank is an approximately 1,000-gallon, carbon-steel, domed-bottom, flat-topped tank. The tank designator is LCS-Tank-8511. This tank, located in the ATLIC Toxic Area, is used to store and mix L, and during closure will also be filled with decontamination solution. This tank is part of the Agent Feed System, which includes the pumps, filters, lines, and valves needed to deliver Agent L to the LIC PCC during operations. In addition, the pumps and associated piping allow circulation, or mixing, of the tank contents.

Spent Decon Holding Tank

The Spent Decon Holding Tank is an approximately 1,000-gallon, stainless-steel, domed-bottom, flat-topped tank of identical design to the Lewisite Agent Holding Tank save for the material of construction. This tank, which is located in the ATLIC Toxic Area, stores spent decon, spent NaOH based decontamination solution, which has been is used to rinse out the drained GA TCs and the water generated from the rinsing of both GA and L TCs. This tank is identified as SDS-Tank-8523 and it is part of the Spent Decon Feed System, which includes the pumps, filters, lines, and valves to deliver spent decon to the LIC SCC. In addition, the pumps and associated piping allow circulation of the tank's content.

Nitric Acid Holding Tanks

The spent nitric acid generated from the rinsing of the L TCs is stored in either of the two Nitric Acid Holding Tanks which are located in the ATLIC Toxic Area. Each tank is an approximate 1,000-gallon, stainless-steel, domed-bottom, flat-topped tank of identical design to the Spent Decon Holding Tank. The tanks are identified as NSF-Tank-8514 and LCS-Tank-8516. Each tank has an inlet to allow for additions of 3 M or higher strength nitric acid that is added to treat the L concentration in the spent acid to below the WCL. The tanks are connected so that if necessary the content of one tank can be transferred to the other. In addition each tank is equipped with an outlet to allow for the transfer of < WCL Spent Nitric Acid to a 90-day *accumulation tank located in the PAS Enclosure pending off-site transfer for deep well injection.* The associated pumps and piping allow for mixing the tank's content.

Major Spill Tank

The Major Spill Tank is an approximately 1,000-gallon, stainless-steel, domed-bottom, flat-top tank of identical design to that of the SDS tank. It is maintained empty as a contingency tank for major spills of Agents GA, L, spent decon, or spent nitric acid, and it is located in the ATLIC Facility Toxic Area. A major spill tank is necessary because of the inability to install a sump in the TOX that is of sufficient size to comply with the secondary containment requirements associated with permitted hazardous waste storage tanks. Rather than collecting all the liquid that may be spilled into a sump, this scheme transfers the spilled liquid to the Major Spill Tank

as the spill material accumulates in the sump. Major Spill Tank ancillary equipment allows for liquid waste stored in the tank to be directed to the LIC PCC, SCC, or available drums.

Spent Scrubber Brine Tanks

The Spent Scrubber Brine (SSB) Tanks, used to store the scrubber brines that are removed from the LIC PAS common sump, are located inside the ATLIC PAS Environmental Enclosure. There are three carbon steel SSB tanks, each with a 12,000-gallon storage capacity. The ancillary equipment associated with these tanks allows for their contents to be transferred to tankers that will transport the SSB to an off-site Subtitle C TSDF for disposal, provided the agent analysis of a sample collected from each tank's transferred contents confirm that the agent concentration is less than the WCL. The SSB tanks are managed as 90-day accumulation tanks.

Hazardous Waste Processed and Generated by ATLIC Facility Operations

The hazardous wastes processed and generated by the ATLIC Facility are listed in Table 4 below.

Table 4. Hazardous Waste Streams Treated and Generated by ATLIC Operations

Waste Stream	Source	Treatment Method	Applicable Waste Codes
Agent GA	Agent GA drained from TCs	Incineration (ATLIC PCC)	P999, D004, D007, D008, D021
Agent L	Agent L drained from TCs	Incineration (ATLIC PCC)	P999, D004, D007, D008, D009, D010
Spent Decon (NaOH)	Solutions from rinsing drained GA TCs	Incineration (ATLIC SCC)	P999, D002, D004, D007, D008, D009, D010, D021
TC Rinse Water	Water from rinsing TCs after they have been rinsed with decontamination solution (GA TCs), or nitric acid (L and Transparency TCs)	Incineration (ATLIC SCC)	P999, D002, D004, D007, D008, D009, D010
Baghouse Fabric Filters	ATLIC PAS	Stabilized and land filled at Subtitle C TSDF	P999, D004, D007, D008, D009
Discarded Pre- and HEPA Filters	ATLIC PAS	Stabilized and land filled at Subtitle C TSDF	P999, D004, D007, D008, D009
Spent Activated Carbon	ATLIC PAS	Stabilized and land filled at Subtitle C TSDF	P999, D004, D007, D008, D009
Spent Nitric Acid	ATLIC rinse out	Treated in 90-day tank, at the completion of the L and Transparency TCC campaigns, with NaOH solution to lower agent concentration to < WCL of 200 ppb, then shipped off site for deep well injection	P999 prior to addition of NaOH solution, then P999, D002, D004, D007, D008, D009, D010
ATLIC Facility Spent HVAC Pre- & HEPA Filters	ATLIC Facility HVAC System	Managed on site by DVS, DVSSR & Autoclave, then ship to off-site Subtitle C TSDF	P999 (Filters before carbon beds) P999 (Filters after carbon beds)
ATLIC Facility Spent HVAC Activated Carbon	ATLIC Facility HVAC System	Added decon solution to accumulation container, then shipped to off-site Subtitle C TSDF	P999 (1st bank) P999 or P999 (banks 2 and 3)
Agent Monitoring Waste	Maintenance of the ADCDF Agent Monitors	Managed on-site by DVS, DVSSR & Autoclave, then shipped to off-site Subtitle C TSDF	P999 or P999-F999
Discarded PPE (Level A Suits, Butyl Rubber gear)	Entries into ATLIC Facility Toxic Area	Managed on site by DVS, DVSSR & Autoclave, then shipped to off-site Subtitle C TSDF	P999, or P999-F999
Life Support System (LSS) Air Hoses	Entries into ATLIC Facility Toxic Area	Managed on site by DVS, DVSSR & Autoclave, then shipped to off-site Subtitle C TSDF	P999 or P999-F999
Agent Feed System Strainers	ATLIC Agent Tank Feed System	Managed on-site by DVS, DVSSR & Autoclave, then shipped to off-site Subtitle C TSDF	P999, D004, D007, D008, D009, D010, D021

Table 4. Hazardous Waste Streams Treated and Generated by ATLIC Facility Operations (cont.)

Waste Stream	Source	Treatment Method	Applicable Waste Codes
SDS Feed System Strainers	ATLIC SDS Tank Feed System	Stabilized and land filled at Subtitle C TSDF	F999, D002, D004, D007, D008, D009, D010, D021
Spent Nitric Acid Feed Strainers	ATLIC Spent Nitric Acid Tank Feed System	Stabilized and land filled at Subtitle C TSDF	F999, D004, D007, D008, D009, D010
Decontaminated Ton Containers	Ton Container Cutting and Cleaning Operation	Stabilized and land filled at Subtitle C TSDF	F999, D005, D006, D007, D008*
Spent Decon Solution from Closure	Decontamination of ATLIC Facility during Closure	Accumulated in permitted storage tank and treated by the addition of NaOH solution to lower agent concentration to < the WCL, then shipped off site to a Subtitle C TSDF for direct incineration	F999, D002, D004, D007, D008, D009, D010, D021

*Metal Toxicity Characteristic waste codes based on TC outer surface paint coating

Modification Classification

This modification request is classified as a Class 3, based on 40 CFR 270.42(d)(1), which reads:

> d) *Other modifications.* (1) ***In the case of modifications not explicitly listed in appendix I of this section, the permittee may submit a Class 3 modification request to the Agency***, or he or she may request a determination by the Director that the modification should be reviewed and approved as a Class 1 or Class 2 modification. If the permittee requests that the modification be classified as a Class 1 or 2 modification, he or she must provide the Agency with the necessary information to support the requested classification.

This request proposes revisions to the following sections of the existing TOCDF RCRA Permit:

- **Module I** (Standard Permit Conditions) is revised to expand the hazardous waste spill and release reporting requirements that are currently applicable to TOCDF to the ATLIC Facility.

- **Module II** (General Facility Conditions) is revised to:

  - Extend the requirements to cease incineration and munition/bulk container draining operations if the presence of agent is confirmed in the incinerator or HVAC stacks that are currently applicable to TOCDF to the ATLIC Facility.

  - Extend the masking requirement currently applicable to TOCDF to the ATLIC Facility.

- Differentiate the closure requirements applicable to TOCDF and the ATLIC Facility with the differences being the ability to close the ATLIC Facility before all ATLIC Facility secondary waste is processed, and to allow for a later submission date for the ATLIC Facility closure plan than for the TOCDF closure plan. Note that the ATLIC-generated secondary waste will be processed in the Area 10 Autoclave during the corresponding GA and L Agent Campaigns, which will most likely occur after the completion of ATLIC Facility operations.

- **Module IV** (Tank Systems) is revised to specify ATLIC Facility hazardous waste storage tanks and the associated operating conditions.

- **Module V** (Long-Term Incineration) is revised to provide place holders for the long-term incineration OPLs that will be applicable to the ATLIC, and which will be derived from data obtained during performance testing [i.e., surrogate and agent trial burns (ATBs)].

- **Module VI** (Short-Term Incineration) is revised to specify the ATLIC OPLs that will be applicable during the shakedown period associated with ATLIC performance testing and the limitations for processing wastes following completion of the performance tests.

- **Module VIII** (Demilitarization Miscellaneous Treatment Units) is revised to specify the operating requirements associated with the two TC Rinse/Drain Glove Boxes that will be used to drain GA, L, and Transparency TC's of their liquid fills, and to decontaminate theTC's with decontamination solutions, acids, and water.

- **Module X** (Air Emission Standards for Equipment Leaks, Tanks, Containers, and HVAC) is revised to include the operational and monitoring requirements applicable to the ATLIC Facility HVAC Filter System.

- **Tables 1 and 2** are revised to specify the health-based emission concentrations applicable to GA and L and to include the HWMUs associated with the ATLIC Facility.

- **Attachment 1** (Facility Description) is revised to include the ATLIC in the facility description.

- **Attachment 2** (Waste Analysis Plan) is revised to include the waste analysis requirements for wastes treated and generated at the ATLIC Facility, and to include the initial characterization of the chemical agent that will be treated at the facility.

- **Attachment 3** (Sampling, Analytical, And QA/QC Procedures) is revised to include references to the analytical procedures that will be used to characterize the waste to be treated at the ATLIC facility.

- **Attachment 4** (Security Procedures) is revised to describe ATLIC Facility security

procedures.

- **Attachment 5** (Inspection Plan) is revised to include the inspection requirements associated with the ATLIC Facility HWMUs.

- **Attachment 6** (Instrument Calibration Plan & Incinerator Waste Feed Interlock Function Test) is revised to specify the type of instruments and associated calibration frequencies that will be used to measure ATLIC-regulated operating parameters and permitted hazardous waste storage tank liquid levels.

- **Attachment 7** (Training Plan) is revised to include the training requirement for ATLIC Facility personnel.

- **Attachment 8** (Preparedness and Prevention) is revised to incorporate references to the ATLIC Facility.

- **Attachment 9** (Contingency Plan) is revised to describe equipment included in the ATLIC design for the purpose of addressing contingencies and how the emergency response for the ATLIC facility is integrated into the existing emergency response system.

- **Attachment 10** (Closure Plan) is revised to include the ATLIC Facility HWMUs and the volumes of waste associated with each that will need to be treated prior to closure.

- **Attachment 11** (General Facility Drawings) is revised to reference ATLIC Facility drawings.

- **Attachment 14** (Miscellaneous Treatment Units) is revised to include the operating requirements for the two Ton Container Rinse/Drain Glove Boxes that will be installed and operated at the ATLIC Facility

- **Attachment 16** (Tank Systems) is revised to include specification for the ATLIC Facility permitted hazardous waste storage and treatment tanks.

- **Attachment 17** (Equipment Lists) is revised to include a listing of ATLIC Facility equipment that must be maintained to control release of organic vapors from permitted HWMUs.

- **Attachment 19** (Instrumentation and Waste Feed Cut-Off Tables) is revised to include a listing of the instrumentation that will monitor regulated operating parameters and activate Automatic Waste Feed Cutoffs (AWFCOs), and to specify the ATLIC AWFCO setpoints (i.e.,OPLs).

- **Attachment 20** [Continuous Emission Monitoring System (CEMS) Plans] is revised to reference the CEMS associated with the ATLIC.

- **Attachment 22** (Agent Monitoring Plan) is revised to specify ATLIC Facility agent monitoring locations for the GA and L Agent Campaigns.

2. JUSTIFICATION FOR CHANGE

The design of the ATLIC Facility includes features similar to the TOCDF. Like TOCDF, the ATLIC Facility is equipped with a "cascading" HVAC system that directs air that may be contaminated with agent vapor to activated carbon filter systems. The power system includes an UPS and Emergency Generators to ensure that power is provided to essential and critical systems during commercial power outages. Agent monitoring is conducted throughout the facility, and on the ATLIC and HVAC carbon filter exhaust stacks using Automatic Continuous Air Monitoring Systems (ACAMS), and Depot Area Air Monitoring Systems (DAAMS) for GA, and multiple MINICAMS with different type analytical columns for L. Similar to the TOCDF, ATLIC Personal Protective Equipment (PPE) includes fully-encapsulating suits [i.e., Occupational Safety and Health Administration (OSHA) Level A Suits] to allow entries into agent-contaminated areas. The ATLIC design also incorporates vestibules and airlocks to provide access to and egress from agent-contaminated and uncontaminated areas. Therefore, the ATLIC design and operational plans are based on proven design and operational concepts that have been demonstrated to be successful at the TOCDF.

The most likely issues associated with the ATLIC permitting process of interest to the public are: 1) the need for the ATLIC when there are four operating incinerators currently located at the TOCDF; 2) the planned format of the ATLIC trial burns, which proposes the use of L as one of the performance test (i.e., trial burn) waste feeds; and 3) processing GA, L, and L TC water rinsate after performance testing is completed. These ATLIC issues are addressed below.

Need for ATLIC

The TOCDF is proposing to build and operate the ATLIC, which includes a single, small LIC that will process the Agents GA and L that are contained in 4 and 10 TCs, respectively, and the up to 10 empty TCs referred to as Transparency TCs. The ATLIC and TOCDF will be operated concurrently.

The TOCDF is proposing to build and operate this additional small incineration facility to destroy the DCD GA and L stockpile rather then destroying the 14 TCs of this stockpile at the TOCDF because:

- The federal government has committed to complete the destruction of the national chemical agent stockpile by March 2012. Although the entire nation-wide stockpile will not be destroyed by this date, the Baseline facilities (i.e., the incineration facilities that include TOCDF) support and plan to fulfill this commitment.

- Agent campaign changes at TOCDF require that many areas, and permitted hazardous waste treatment and storage units within the facility, be decontaminated before a different type of agent may be processed through the Munition Demilitarization Building (MDB). In addition, the facility must be refitted with the agent monitors (i.e., ACAMS, or

MINICAMS and DAAMS) applicable to the agent being processed. Once the monitors are positioned, they must undergo a quality assurance step referred to as "baselining," which ensures that the monitors can reliably detect agent concentrations at the required limits. The process of decontamination, agent monitor installation, and the performance of agent monitor baselines can take several months. During these processes, TOCDF is not processing any chemical agents. The fixed costs to operate TOCDF do not change during agent campaign changes, and it costs approximately $480,000 per day to operate the TOCDF. Therefore, building and operating a separate facility to process the GA and L TCs eliminate the need for two agent campaign changeovers at TOCDF, thus saving the federal government millions of dollars.

- The TOCDF plans to process mustard TCs with high concentrations of Hg and 4.2-inch HD and HT Mortars, all of which will require operation of the newly-installed PAS Filtration Systems (PFS). Operation of the PFSs that have been installed on the TOCDF incinerators is expected to be transparent to the operation of the incinerators (i.e., not cause additional incinerator down time because of PFS maintenance); however, some unforeseen delays that interrupt the mustard processing at TOCDF may occur. In addition, HD mortar processing proved challenging at the Johnston Atoll Chemical Agent Destruction System (JACADS), and that campaign took a longer time to complete than expected. Were the Agent GA and L TCs to be processed through the TOCDF incinerators, any unforeseen delays in processing the remaining mustard TCs and 4.2-inch Mortars would also delay the processing of the GA and L TCs. Therefore, building and operating a separate facility to process GA and L TCs eliminate the risk of an extended TOCDF operational life caused by unforeseen delays associated with PFS operation and 4.2-inch Mortar processing.

- The ATLIC PAS was designed specifically with consideration for the high arsenic and Hg content associated with L. The combustion of arsenic is known to cause the formation of extremely small particulate, as small as 0.15 micron in diameter, which is difficult to capture. Features unique to the ATLIC PAS relative to a TOCDF incinerator PAS that are included specifically for the control of arsenic particulate emissions are:

  - Chilling of the scrubber brine to cause arsenic entrained in the exhaust gas to coalesce and collect in the scrubber brine.

  - Positioning the venturi scrubber after the packed bed scrubbers through which the chilled scrubber brine flows to further remove the coalesced arsenic particulate.

  - Installing a baghouse and using PAC to coat the baghouse filter elements to further control particulate emissions.

  - Installing a Fixed-Bed Carbon Filter System, which incorporates both pre- and HEPA filters, which further aid in the control of particulate emissions.

- The treatment of L in the TOCDF incinerators could cause the demister candles to become plugged, thus requiring multiple demister candle change-outs to process the few L TC's. This, in turn, would extend the time required to process the TC's.

- The concurrent processing of the remaining DCD mustard stockpile at TOCDF, and the GA and L stockpiles at the ATLIC allow for the closure of both facilities to begin sooner than if the TOCDF alone were used to process the GA and L TC's. The destruction of the DCD Chemical Stockpile is a commitment made though international treaty. The commitment to destroy the chemical weapons stored in Utah, and the closure and dismantling of the TOCDF, are commitments made to the people of the State of Utah.

Trial Burn Format

The TOCDF is proposing to perform two separate trial burns formatted as HWC MACT regulation Comprehensive Performance Tests (CPTs). Furthermore, TOCDF is proposing to process the GA agent following the successful completion of the first CPT, to use L as feedstock during the second CPT, and continue processing spent decontamination solution generated from L TC rinse-out following successful completion of the second CPT. Two back-to-back CPTs are required because of TOCDF's desire to process the GA following the first CPT and issues associated with delivering sufficient amounts of arsenic to the ATLIC to support the desired L processing rates. The first CPT is intended to demonstrate compliance with the Destruction and Removal Efficiency (DRE) standard and the chlorine, metals, particulate, and dioxins emission standards. The second CPT is intended to demonstrate compliance with the same standards, except for the DRE standard, while processing L, which contains higher concentrations of Hg, arsenic, and ash.

The CPT format is proposed, with its associated suite of exhaust gas samples, because of the short operational duration of the ATLIC (less than one year). The CPT suite of exhaust gas samples includes dioxins, metals, particulate, chlorine, and hydrogen chloride. The Surrogate Trial Burn DRE demonstration will additionally include Volatile Organic exhaust gas samples, and a determination of Total Hydrocarbons (THC) by a Continuous Emissions Monitoring System.

Exhaust gas samples associated with Products of Incomplete Combustion (PIC), other than dioxins, are not proposed because these data are typically used to develop a Human Health Risk Assessment (HHRA). An HHRA estimates the heath effects caused by emission sources that typically operate for 15 years or more. The ATLIC will operate only long enough to process the contents of 14 TCs and up to 10 Transparency TC's which were shipped to DCD specified as empty. It will take less than one year to process the GA, L, and Transparency TC's, and the associated decontamination and rinsate solutions. The short duration of the ATLIC agent campaigns makes an HHRA analysis and the collection of the PIC identifying exhaust gas samples unnecessary.

The first CPT will demonstrate the capabilities of the ATLIC to comply with the DRE Performance Standard by feeding a blend of Principle Organic Hazardous Constituents (POHC's) having a higher degree of incineration difficulty (i.e., more thermally stable) than GA and L. In addition, sufficient metals spikes will be added to the waste feed to support the processing of GA.

The second CPT will demonstrate the capabilities of the ATLIC to comply with the dioxins, metals, particulate, chlorine, and hydrogen chloride emissions standards while processing a waste stream having higher concentrations of metals, ash, and chlorine than the metals-spiked surrogate wastes fed during the Surrogate Trial Burn.

The waste proposed for the second CPT is L, which was selected because:

- L is 32 weight percent arsenic. The arsenic could be added to a surrogate carrier in one of two ways: as an oxide in powered form, or as an element in a chemical compound. If arsenic were added in a powdered form, it would be suspended in the surrogate carrier. At the required weight percent, it is doubtful that all the arsenic initially added would remain in suspension as it travelled the length of the feed line. To establish an arsenic feed rate, it would have to be assumed that all the arsenic that was initially added was delivered to the Primary Combustion Chamber (PCC) as it would be difficult to determine the amount of that dropped out of the carrier before arriving at the PCC.

- All the arsenic fed to the LIC would reach the PCC if the arsenic was an element in a chemical compound fed during performance testing. The chemical compounds having as high an arsenic concentration as L are almost or equally as toxic as L. There are arsenic-containing herbicides, but they are banned in the United States. There are arsenic-containing acids with approximately half the weight percent of arsenic as L. Were one of these acids mixed with a carrier so that other metals could be spiked, the required feed rate of the carrier and the arsenic-containing acid would need to be more than twice the desired feed rate for L.

- The L also contains Hg. Spiking with multiple metals typically requires multiple spiking solutions since not all metals dissolve or can be carried in the same spiking solution. If multiple spiking solutions were required, the overall waste feed rate would need to be further increased over the processing rate desired for L. Additionally, the mixing of different spiking solutions, which are comprised of different metals and different carriers, sometimes cause the metals contained in them to precipitate out of solution or the mixed solutions to form a matrix that will not pump.

Therefore, L is the preferred waste feed for the second CPT. Agent L contains arsenic as an element in its chemical structure, thus ensuring that all the arsenic added to the system will reach the PCC. In addition, L also contains Hg, which precludes the need to develop spiking solutions that will prevent the metals in solution from precipitating or forming a non-pumpable mixture. The selection of L as a CPT waste feed also results in waste minimization as discussed below.

- Spiking solutions become hazardous wastes when they are fed to the incinerator. They are intentionally created to be used during incinerator performance testing. The spiking solutions are purposely-made hazardous wastes that did not exist until they were prepared. In addition the L currently in storage is regulated as a P999 listed hazardous waste (acutely toxic off-spec or discarded product). Since this L already exists, the selection of it as a waste feed during the second CPT minimizes the generation of hazardous waste as no hazardous waste spiking solutions need to be developed and then incinerated.

Therefore, the feeding of L during the second CPT generates less hazardous waste than does the feeding of spiking solutions and associated carriers. The use of L thus provides waste minimization and assurance that the metals of concern are delivered to the LIC PCC.

Post-Trial-Burn Processing of Agents GA and L

The justification for processing GA following the first CPT is:

- The HWC MACT and RCRA regulations both allow for waste processing after completion of a trial burn or CPT. Title 40 CFR 63.1206(b)(5)(i) reads:

  > (C) *Restriction on waste burning.* (*1*) Except as provided by paragraph (b)(5)(i)(C)(*2*) of this section, after the change and prior to submitting the notification of compliance, you must not burn hazardous waste for more than a total of 720 hours (renewable at the discretion of the Administrator) and only for the purposes of pretesting or comprehensive performance testing. Pretesting is defined at §63.1207(h)(2)(i) and (ii).

  (2) You may petition the Administrator to obtain written approval to burn hazardous waste in the interim prior to submitting a Notification of Compliance for purposes other than testing or pretesting. You must specify operating requirements, including limits on operating parameters, that you determine will ensure compliance with the emission standards of this subpart based on available information. The Administrator will review, modify as necessary, and approve if warranted the interim operating requirements.

- 40 CFR 270.62 (hazardous waste incinerator permits) reads:

  c) For the purposes of allowing operation of a new hazardous waste incinerator following completion of the trial burn and prior to final modification of the permit conditions to reflect the trial burn results, the Director may establish permit conditions, including but not limited to allowable waste feeds and operating conditions sufficient to meet the requirements of §264.345 of this chapter, in the permit to a

new hazardous waste incinerator. These permit conditions will be effective for the minimum time required to complete sample analysis, data computation and submission of the trial burn results by the applicant, and modification of the facility permit by the Director.

- During the post-trial-burn period, i.e., the time between the completion of the CPT (or trial burn) and approval of the results, TOCDF is proposing to process GA at half (i.e., 50 percent) the feed rate of the surrogate POHC's fed during the test.

- The TOCDF further proposes to postpone the processing of GA after completion of the Surrogate CPT until Executive Secretary approval of a preliminary data package that includes the results for all the exhaust gas samples used to determine compliance with the HWC MACT New Source Emission Standards. Note that the HWC MACT New Source Emission Standards are proposed to be incorporated into the TOCDF RCRA Permit through this permit modification; they are more stringent then those currently specified in Condition VI.A.3.a.i.

  Therefore, processing GA after completion of the DRE-associated CPT (i.e., the Surrogate Trial Burn) is supported by the governing federal regulations, and a limited feed rate plus actual test results which will ensure compliance with the performance standards.

The justification for processing spent decontamination solution comingled with rinse water generated from L TC rinse out following the completion of the second CPT is that:

- By the time L TC rinse water which is added to the spent decontamination solution, is processed the ATLIC there will be two sets of exhaust gas sampling data available that allow for a determination as to how well the ATLIC PAS controls metal emissions. Those results will be from the ATLIC Surrogate Trial Burn and the Mini-burn associated with the L CPT. The TOCDF is proposing to only allow the processing of the L generated spent decontamination solution and L TC rinse water immediately following completion of the ATLIC L CPT if the L Mini-burn data shows compliance with the metal performance standards.

- To further ensure compliance with the metal performance standards TOCDF proposes to process this waste stream TOCDF at 50 percent of the L CPT demonstrated rate.

- The metal concentrations in the spent decontamination solutions and the L TC rinse water are anticipated to be much lower than those found in the agent itself.

- A waste analysis is still required prior to processing each tank-full of spent decontamination solutions. The required analyses include a metals analysis. The metals analytical results may limit the spent decontamination solution feed rate to less than the proposed 50 percent of the L CPT demonstrated rate.

The justification for processing L following the completion of the second CPT includes:

- The TOCDF proposal to suspend the processing of L following completion of the second CPT until preliminary test data are submitted to DSHW, after which the L processing would resume at 50 percent of the CPT-demonstrated rate. Note that the preliminary data required for submission are necessary to determine whether compliance with the HWC MACT New Source Emission Standards was achieved. The New Source Emission Standards are equivalent to the Performance Standards that are proposed to be added to the TOCDF RCRA permit for the ATLIC though this permit modification.

  The above proposal is not consistent with past practices associated with TOCDF incinerator post-trial-burn waste processing; it is a more stringent requirement. Past TOCDF incinerator post-trial-burn waste processing was allowed immediately following completion of performance testing, which was prior to the availability of any analytical data for the test just completed. However, it was justified based on results from past tests performed on the same incineration system. As previously stated, TOCDF is proposing to suspend processing of L after the CPT until the submittal of preliminary data to the Executive Secretary.

  The TOCDF proposal to resume L processing after submission of the preliminary data for the L CPT is reasonable because TOCDF will have reviewed the data prior to submission and already made the determination as to whether compliance with the standards was achieved.

Therefore, the processing of L after submission of preliminary data has been submitted to DSHW is also supported by the governing federal regulations and a limited feed rate, combined with actual test data ensures compliance with the performance standards.

The TOCDF further proposed to increase the L processing rate to 75 percent of the CPT demonstrated rate once the preliminary data are approved by the Executive Secretary. This is consistent with past post-trial-burn waste processing practices associated with TOCDF incinerator ATBs.

Note in most cases the additional permit conditions proposed by the modification request are modeled after conditions that are in the current permit and applicable to the TOCDF. Therefore most of the proposed additions are based on precedents previously established. The exception are the proposals to: 1) not perform additional or ongoing organic analysis of the agent drained from the GA and L TCs; 2) not include an operating parameter limit for high quench tower exhaust gas temperature; 3) test the ATLIC AWFCO system every 30-days rather than every 14-days; 4) transfer spent decontamination solution that is generated during the closure of the ATLIC to an off-site TSDF rather than processing it through the ATLIC, and 5) establish the high exhaust gas agent concentration operating parameter limits for GA and L at 0.5 and 0.4 Source Emission Limit (SEL), respectively, rather than 0.2 SEL. Justification for these proposed changes is provided below.

No Additional or Ongoing Organic Analysis of Agents GA or L

This permit modification request proposes to use the results that are included in the "Final Report for Ton Container Sample Analysis" prepared by Battelle (October 2, 2009) to characterize the metals and organics contained in the Agent GA, the organics contained in L, and contents of the of the Transparency TCs. If approved the only additional analysis that would be required on the waste contained in the TCs to be processed at the ATLIC is a metal analysis on samples of L collected from the L Agent Collection Tank.

If approved the analytical requirements associated with the agent to be processed at the ATLIC would be different then the requirements associated with the analysis of agents processed at the TOCDF (see proposed revisions to Attachment 2 of the TOCDF RCRA Permit which is included as part of this permit modification request).

The previously referenced report contains an organic and metal analysis for liquid agent samples collected from each GA (4) and L (10) TC. In addition a sample from each L TC of the solids adhering to the TC's interior surface was collected and analyzed for metals. There are no other TCs or agent matrices to sample.

Regarding the organic analytical results reported for both Agent GA and L, the agent organic analytical results in the Battelle report are qualitative rather than quantitative. The reported purity of the agents is therefore, an estimate. However, the results for the chlorobenzene contained in the Agent GA are quantitative.

The successive CPT (i.e., trial burn) format proposed in this permit modification request which includes a CPT using surrogates as waste feed and a second CPT that uses L as waste feed do not require an agent purity determination because an Agent based DRE is not required. Rather, a DRE will be determined for the surrogates selected for the first CPT. The two surrogates selected (i.e., chlorobenzene and tetrachloroethylene) both have higher degrees of incineration difficulty than GA and L. Chlorobenzene was selected as a surrogate because Agent GA contains chlorobenzene. Tetrachloroethylene was selected because it has a higher degree of incineration difficult than both L and GA.

The HWC MACT regulations require a "one time" demonstration of DRE using compounds having a high degree of incineration difficulty; i.e., compounds that are thermally stable [see 40 CFR 63.1206(b)(7)(i)(A)]. This "one-time" DRE demonstration will be performed using the previous referenced surrogates. A quantitative analysis of the surrogates fed during the CPT is *required to determine a DRE. A quantitative analysis of the agents to determine this purity is not* necessary because the DRE demonstration is accomplished using surrogates. Therefore the existing organic analysis for Agents GA and L included in the Battelle report provides sufficient characterization data.

Regarding the metals analysis for Agent GA, a review of the analytical results for the samples collected from each of the four Agent GA TC's shows three metals of concern: mercury, arsenic and lead. The CPT, or trial burn, using surrogates as waste feed also proposes to spike the waste

feed with metals. The proposed metal spiking rates will create a waste feed with metal concentrations for mercury, lead, and arsenic that are equivalent or greater than the maximum concentrations found in all the GA TC's.

The concentrations for the metals of concern (mercury, lead, and arsenic) in the Agent GA are small relative to the concentrations of those same metals in the L; thus the need for the second performance test which uses L as waste feed. The ATLIC PAS was designed to control the metals feed rates that would be experienced during the processing of L : the agent with the much higher metal concentrations. As an example the highest Agent GA arsenic concentration is 49.6 parts per million (ppm). The highest arsenic concentration found in the samples collected from each of the L TCs is 335,000 ppm. For mercury the highest concentrations in the samples are 10.4 and 528 ppm for Agent GA and L, respectively. For lead the highest concentration is found in the Agent GA sample at 18.7 ppm. The planned lead spiking rate during the surrogate performance test is 50 ppm. Agent GA processing will not begin until preliminary results of the Surrogate CPT are approved by the Executive Secretary.

Consequently, considering the above the existing metals analyses for Agents GA that are included in the Battelle report provide sufficient characterization data.

Regarding the metals analysis for the L TC solids, the L TC solids will not be fed to the ATLIC. The drained L TCs will be rinsed out with 3 M nitric acid which is intended to dissolve the solids that remain behind after the agent is drained. The Spent Nitric Acid waste stream is intended to be disposed of off-site by deep well injection. Therefore the existing analysis of the solids included in the Battelle report provides sufficient characterization data for processing the L TCs.

No Operating Parameter Limit for High Quench Tower Exhaust Gas Temperature

This permit modification request does not propose an operating parameter limit (OPL, which is synonymous with Automatic Waste Feed Cut-Off limit) for maximum Quench Tower exhaust gas temperature. The Automatic Waste Feed Cut-Off (AWFCO) systems of each of the TOCDF incinerators currently include this OPL.

The design of the ATLIC PAS includes process units that require high temperature exhaust gas OPLs as surrogate measures of compliance with state and federal hazardous waste performance standards. The process units are the baghouse which is used to remove the Pulverized Activated Carbon that is injected into the exhaust gas, and the fixed bed carbon filter system which is the *last process exhaust gas passes through before being released to the ambient air. The design of* the TOCDF incinerator PASs does not include either of these process units.

Both these process units are included in the design to primarily control mercury and arsenic emissions. The HWC MACT regulations 40 CFR 63.1209(k)(1) and 63.1209(k)(7)(iii) require operators to establish maximum exhaust gas temperatures for incineration system using a baghouse or a fixed bed carbon filter system.

Establishing an OPL for maximum Quench Tower exhaust gas temperature is redundant to those

required by the HWC MACT regulations for an incinerator PAS equipped with a baghouse and fixed bed carbon filter. This permit modification proposes to establish maximum exhaust gas temperature OPLs as required by the HWC MACT regulations.

30 Day Testing Frequency for ATLIC AWFCO System

The TOCDF is proposing in this permit modification request to test the ATLIC AWFCO system every 30 days. Currently the TOCDF incinerator AWFCO systems are required to be tested every 14 days. A 30-day AWFCO system test frequency for the ATLIC is justified based on the following:

40 CFR 63.1206(c)(3)(vii) reads:

(vii) *Testing*. The AWFCO system and associated alarms must be tested at least weekly to verify operability, unless you document in the operating record that weekly inspections will unduly restrict or upset operations and that less frequent inspection will be adequate. <u>At a minimum, you must conduct operability testing at least monthly</u>. You must document and record in the operating record AWFCO operability test procedures and results.

40 CFR 264.347 reads:

(c) The emergency waste feed cutoff system and associated alarms must be tested at least weekly to verify operability, unless the applicant demonstrates to the Regional Administrator that weekly inspections will unduly restrict or upset operations and that less frequent inspection will be adequate. <u>At a minimum, operational testing must be conducted at least monthly.</u>

The above regulations both support a 30-day AWFCO system testing frequency provided the operator can demonstrate that weekly tests will unduly restrict operation and that less frequent inspection will be adequate.

The ATLIC Agent GA and L Campaigns are estimated to last 7 and 52 days respectively while the TOCDF agent campaigns have spanned 13 years thus far. The short duration of the ATLIC agent campaigns does not justify the development of an automated AWFCO system test similar to that used for the TOCDF incinerators. Rather the ATLIC AWFCO system test will be performed in the manner that was used for the TOCDF incinerator before the automated method was implemented. This method requires the coordination of Control Room Operators and instrumentation technicians. The technician is required to inject a control signal at each AWFCO transmitter at a magnitude that causes the AWFCO to activate. This method of AWFCO testing is more time consuming then the automated method used at TOCDF.

Additionally, the ATLIC is equipped with more pollution control devices then are the TOCDF incinerators. Each pollution control device has specific AWFCOs associated with it, so there are more AWFCOs to test on the ATLIC then on a TOCDF incinerator (37 for the ATLIC compared to 32 for a TOCDF LIC).

A 30-day AWFCO system testing frequency is justified considering the rigor and time required to test the system. This testing frequency for the ATLIC AWFCO system is adequate to ensure its proper operation. An AWFCO system test is required to be performed and observed by Utah DSHW representatives prior to the start of each agent campaign. Because of the short ATLIC agent campaigns and the requirement to test the system prior to each agent campaign, the ATLIC AWFCO system will initially be tested more frequently than every 30-days.

Transfer Closure Generated Spent Decontamination Solution to Off-Site Subtitle C TSDF

This permit modification proposes to transfer decontamination solutions that are generated during closure of the ATLIC to an off-site Subtitle C TSDF. This is proposed to lessen the time that the ATLIC needs to be operational, and if approved lessens the consumption of fuel gas and groundwater resources.

During closure the ATLIC would only be required to process spent decontamination solution after a sufficient amount has accumulated in the SDS-Tank as different systems and sections of the facility are sprayed and washed with decontamination solution. If the ATLIC is used to process closure generated spent decontamination solutions it will remain idle and at operating temperatures between successive fillings of the SDS-Tank. Because of the slower generation rate of spent decontamination solution during closure and the lack of agent to process, the ATLIC will spend considerable time idling at operating temperature. The consumption rate of fuel and groundwater resources will remain constant however because the incinerator cannot be rapidly brought up to operating temperatures and shutdown repeatedly depending on whether wastes are available for processing.

TOCDF transferred spent decontamination solutions to an off-site TSDF during the Agent GB Campaign. These solutions were required to have an agent concentration that was less than the WCL and to be treated by "direct incineration", meaning that the commercial hazardous waste incinerator to which the solutions were transferred was required to feed the solutions to the incinerator directly from the container, or tanker, used for transport. This requirement was included as a condition in the TOCDF RCRA Permit. These spent decontamination solutions were therefore treated in the same manner as they would have been treated on-site, the only difference being the incinerator that treated the waste.

The request to transfer ATLIC closure generated spent decontamination solution to an off-site TSDF therefore does not set precedent since this modification also proposes to have this waste stream, if transferred off-site, treated through direct incineration.

Exhaust Gas Agent Concentration Operating Parameter Limits for GA and L

This permit modification proposes to establish the OPL (i.e., the AWFCO setpoint) for high exhaust gas Agent Concentration for GA and L at 0.5 and 0.4 SEL, respectively, rather than 0.2 SEL which is the limit established for agent alarms associated with the TOCDF Common Stack.

ACAMS and MINICAMS will be used to monitor for GA and L, respectively. These alarm

setpoints are proposed to minimize the occurrence of false positive alarms. The values are proposed based on the following:

- There is less than 4,000 pounds of Agent GA and approximately 25,000 pounds of L. The duration of the GA Campaign is anticipated to be less than two weeks; the L campaign is expected to be less than six months. These short campaign durations do not allow for time to collect data in an attempt to establish an AWFCO setpoint for this operating parameter based on the absolute limit of the selected monitor's capabilities. The AWFCO setpoints of 0.5 and 0.4 SEL are equal to or less than half the SEL. For each agent, the SEL is the value determined by the Center for Disease Control to be protective of human health.

- The 0.2 SEL high agent exhaust gas concentration AWFCO setpoint used at the TOCDF Common Stack is justified in part because of the TOCDF Common Stack flow rate. The TOCDF Common Stack is the combined release point for all four of the incinerators housed in the TOCDF Munitions Demilitarization Building (MDB). Typical TOCDF Common Stack flow rates are about 35,000 Standard Cubic Feet per Minute (scfm) when all four incinerators are operational. The maximum ATLIC exhaust stack flow rate will be less than 1,000 scfm. Mass emission rates of pollutants are determined by multiplying the concentration of a pollutant in a gas stream by the gas steam flow rate. The use of a 0.5 SEL for the ATLIC exhaust stack high agent exhaust gas concentration, coupled with the ATLIC flow rate allows for half as much of an agent mass emission rate as that allowed for on the TOCDF Common Stack. Note that there has only been one agent release from the TOCDF in its 13 year operational history, and the amount of agent released was less than 30 milligrams.

Therefore the ATLIC exhaust stack GA and L alarm setpoint of 0.5 and 0.4 SEL provide an equivalent protection to the environment as does the 0.2 alarm setpoint that is applicable to the TOCDF Common Stack when considering the difference in exhaust gas flow rates of the two sources.

Impact to the TOCDF

Environmental Impacts

Environmental impacts associated with the addition of a new Hazardous Waste incinerator at TOCDF are minimized by the small size of the additional system, the New Source Emission Standards with which ATLIC operations must comply, the amount of time the system will be used, and the TOCDF equipment that will be active during the time the ATLIC is operational.

The ATLIC is small relative to the TOCDF incinerators and to combustion sources in general. The TOCDF has boilers with higher British thermal unit input rates than the ATLIC.

The ATLIC hazardous waste operation must comply with the HWC MACT New Source Emission Standards, which are more stringent than the HWC MACT Existing Source Emission

Standards. Table 5 shows this comparison.

Table 5. Emission/Performance Standards Comparison for New and Existing Sources

	40 CFR 63.1219(a)	40 CFR 63.1219(b)
	Existing Sources	New Sources
	Applicable to TOCDF	Applicable to ATLIC
Dioxins (ng TEQ/dscm @ 7% O_2)	0.4	0.2
High Volatile Metals (Hg) (µg/dscm @ 7% O_2)	130	8.1
Semi-Volatile Metals (Cd + Pb) (µg/dscm @ 7% O_2)	230	10
Low-Volatile (As + Be + Cr) (µg/dscm @ 7% O_2)	92	23
Particulate (gr/dscf @ 7% O_2)	0.013	0.0016
Chlorine/Hydrogen Chloride (Cl2 + HCl) (ppm @ 7% O_2, reported as Cl-)	32	21
Carbon Monoxide (CO) (ppm @ 7% O_2 Hourly Rolling Avg.)	100	100
Total Hydrocarbons* (ppm @ 7% O_2, reported as propane)	10	10

*One time demonstration during DRE portion of performance testing

The ATLIC will only be used to process four GA TCs, 10 L TCs, and up to 10 Transparency TCs. When the processing of these TCs is complete, the ATLIC will undergo a RCRA Closure. Assuming a hazardous waste feed rate of 100 pounds per hour (lb/hr) and a need to rinse out each TC twice with a volume of decontamination solution that is half the volume of a TC, the total amount of time the ATLIC would need to operate to complete its mission is less than 60 days. If this estimate is made even more conservative with an increase to six months, the difference in regulated emissions caused by ATLIC operations compared to the allowable emission caused by the existing TOCDF incinerators is on average an increase of 0.5 percent for each of the regulated categories of emissions (see Table 6, the column labeled "% Change w/DFS Ops").

The ATLIC, barring unforeseen difficulties, will be operational at a time after operation of the TOCDF Deactivation Furnace System (DFS) has stopped. The DFS is needed to process the fuzes and bursters that will be removed from the 4.2-inch Mortars remaining in the DCD mustard stockpile. Mortar processing is anticipated to be completed towards the end of the third quarter of 2010, after which the DFS will be shutdown. The ATLIC operations are anticipated to begin fourth quarter 2010. If this change in operations is taken into account, then the difference in current TOCDF emissions compared to the ATLIC operations is on average a decrease of 33 percent (see last column of Table 6).

Table 6. Expected Emission Increase Based on Emission Standards and Hours of Operation[a]

		TOCDF Sources					ATLIC		
		DFS	LIC1	LIC2	MPF				
Hours Hazardous Operation (hr/yr)[b] ⇒		6,000	6,000	6,000	8,424		4,380		
Flow Rates (dscfm)[c] ⇒		7,000	4,000	4,000	4,200		985		
	Existing Source Standards	Emission @ Standard (lb/yr)	Emission @ Standard (lb/yr)	Emission @ Standard (lb/yr)	Emission @ Standard (lb/yr)	New Source Standards	Emission @ Standard (lb/yr)	% Change w/DFS Ops	% Change w/o DFS Ops
Dioxins (ng TEQ/dscm @ 7% O_2)	**0.4**	0.00006	0.00004	0.00004	0.00005	**0.2**	0.000003	1.7%	-32%
High Volatile Metals (Hg) (µg/dscm @ 7% O_2)	**130**	20	12	12	17	**8.1**	0.1	0.2%	-33%
Semi-Volatile Metals (Cd + Pb) (µg/dscm @ 7% O_2)	**230**	36	21	21	30	**10**	0.2	0.1%	-33%
Low-Volatile (As + Be + Cr) (µg/dscm @ 7% O_2)	**92**	14	8	8	12	**23**	0.4	0.9%	-33%
Particulate (gr/dscf @ 7% O_2)	**0.013**	4,680	2,674	2,674	3,942	**0.0016**	59	0.4%	-33%
Chlorine/Hydrogen Chloride (Cl_2 + HCl) (ppm @ 7% O_2, reported as Cl-)	**32**	7,417	4,238	4,238	6,248	**21**	500	2.3%	-31%
Carbon Monoxide (CO) (ppm @ 7% O_2 Hourly Rolling Avg.)	**100**	8,880	5,074	5,074	7,481	**100**	912	3.4%	-30%

[a]Emissions are calculated as a maximums. Evaluation assumes incinerators emit pollutants at the regulated limit of each emission standard, and process hazardous waste for the full increment of time allowed by the ruling environmental permit. Actual pollutant emission concentrations and hours of hazardous waste operation are less than the values used in these calculations.

[b]Hours of Hazardous Waste Operation for TOCDF incinerators based on limits found in the DCD Title V Permit, Condition II.B.2.a. ATLIC Hours of Operation are estimated and equivalent to 180 days of continuous operation

[c]Sources for exhaust gas flow rates are DFS XV ATB Report, Rev. 1, 30 Sep 2005, LIC HD ATB Report, 4 Apr 2007; MPF HD ATB Report, 28 Mar 2007; and GAAL Processing Facility PAS Process Flow Diagram, Case 5, Stream 290 for maximum fuel input.

TOCDF Personnel Impacts

Personnel impacts are minimized because of the small size of the ATLIC. In addition, the personnel who will operate the ATLIC were trained at the TOCDF and, therefore, are experienced in chemical agent incineration operations.

The ATLIC operations begin toward the end of TOCDF operations, and this will free trained personnel to transfer from the TOCDF to the ATLIC.

Physical TOCDF Impacts

There are no physical impacts to the TOCDF since this is an independent facility located within the contiguous area that is identified by the Environmental Protection Agency (EPA) Identification Number UT5210090002.

There are minimal impacts to Area 10, since the ATLIC will consist of a renovated Ammunition Storage Igloo, to which an enclosure is added to contain the ATLIC PAS and minimal support enclosures. Power, natural gas, and water to the facility will be provided by extending lines from existing sources. The ATLIC Facility will be located in an area that contains like structures (i.e., other ammunition storage igloos).

3. PERMIT CHANGE PAGES

Change Pages in Permit Body

Module I, pages 1, 2, 5, 6, and 7

Module II, pages 1, 3, 4, 5, and 6

Module IV, pages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12

Module V, pages 1, 2, 3, 4, 5, 7, 8, 9, 26, 27, 28, 29, 30, and 33

Module VI, pages 1, 2, 3, 4, 5, 6, 7, 8, 26, 27, 28, 29, 30, 31, and 32

Module VIII, pages 1, 2, 5, 6, 7, and 11

Module X, pages 1, 7, 8, 9, 10, and 11

Tables, pages 1, 4, 9 and 10

Appendix A, page 1

Appendix B, page 3

Change Pages in Permit Attachments

Attachment 1, pages 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25 and 26

Attachment 2, pages 3, 6, 9, 10, 15 , 16 , 17, 21, 22, 26, 27, 28, 29, 30, 31, 42, 50, 51, 52, 57, 2-A-1, 2-A-2, 2-A-11, 2-A-12, 2-A-13, 2-B-6, 2-B-7, 2-B-8, 2-B-9, 2-B-10, and 2-C-11

Attachment 3, page 1

Attachment 4, pages 2, 3, 4, and 5

Attachment 5, pages 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 16, 18, 19, 20, 29, 32, 33, 41, 42, 43, 46, 47, 48, 49, 50, and 51

Attachment 5- Inspection Log Sheets, pages D-27, D-28, D-29, D-30, D-31, D-32, D-33, W-23, W-24, M-12, M-13, M-14, Q-6, Q-7, Q-8

Attachment 6, pages 3, 4, 6, 7, 15, 16, 17, 18, 29, 30, 31, 32, and 33

Attachment 7, pages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, and 23

Attachment 8, pages 3, 4, 5, 6, 7, 9, 10, 11, 12, 15, 20, and 21

Attachment 9, pages 2, 3, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 30, 31, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 49, 50, 51, 52, 54, 57, 58, 61, 62, 63, 64, 67, 68, and 82

Attachment 10, pages 5, 8, and 9

Attachment 11, pages 14 and 15

Attachment 14, pages 2, 58, 59, 60, 61, 62, 63, 64, 65, and 66

Attachment 16, pages ii through iv, and 1 through 27

Attachment 17, pages 1 through 16

Attachment 19, 1, 23, 24, 25, and 26

Attachment 20.
Change pages to CDRL-06 – 3, 4, 5, 12, 15, 18, 22, 24, and 26
Change pages to EG-033 – 2, 3, 6, 7, 8, 14, and 15

Attachment 22, pages 48, 63
Attachment 22A pages 1 through 39

Changes to Permit Drawings

ATLIC Facility "As Built" drawings will be submitted through the Facility Construction Certification process.

MODULE I
STANDARD PERMIT CONDITIONS

I.A. **EFFECT OF PERMIT**

I.A.1. The Permittee is allowed to store or treat hazardous waste in containers, treat and store hazardous waste in tanks, treat and store hazardous waste in miscellaneous (Subpart X) units, and treat hazardous waste in incinerators at the TOCDF and ATLIC in accordance with the conditions of this Permit and in accordance with R315-5.

I.A.2. Any treatment, storage, or disposal of hazardous waste not authorized in this Permit is prohibited except as allowed by R315-5-3.34 or Condition I.F.1. The Permittee is authorized to comply with the conditions of other permits issued by the Utah Department of Environmental Quality or elements thereof and by the USEPA, so long as those conditions are not inconsistent with this Permit. When conditions of various permits are inconsistent, the Permittee must either comply with the more stringent conditions or request and obtain modification of appropriate permits to avoid non-compliance.

I.A.3. Compliance with this Permit during its term constitutes compliance, for purposes of enforcement, with the Utah Hazardous Waste Management Rules, except for those requirements not included in this Permit which become effective by statute. Specifically, compliance with this Permit during its term constitutes compliance, for purposes of enforcement, with R315-8 only for those management practices specifically authorized by this Permit. The Permittee is also required to comply with R315-1, 2, 3, 4, 5, 6, 9, 12, 13, 14, 16, 50, and 101 as applicable.

I.A.4. Issuance of this Permit does not convey property rights of any sort or any exclusive privilege nor does it authorize any injury to persons or property, any invasion of private rights, or any infringement of State or local law or regulations.

I.B. **ENFORCEABILITY**

I.B.1. Violations duly documented through the enforcement process pursuant to Utah Code Annotated 19-6-112, may result in penalties.

I.C. **OTHER AUTHORITY**

I.C.1. The Board expressly reserves any right of entry provided by law and any authority to order or perform emergency or other response activities as authorized by law.

I.D. **PERMIT ACTIONS**

I.D.1. This Permit may be modified, revoked and reissued, or terminated for cause, as specified in R315-3-4.

I.D.2. The filing of a request for a permit modification, revocation and re-issuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

I.D.3. The Executive Secretary may modify this Permit when the standards or regulations on which the Permit was based have been changed by statute, amended standards or regulations, or by judicial decision after the effective date of this Permit.

I.D.4. Except as provided by specific language in this Permit, the Permittee shall not modify or change the design or operation of the TOCDF or ATLIC or any hazardous waste management practice referenced in this Permit until the Permit is modified in accordance with R315-3-4 and R315-4-1.5.

I.E. SEVERABILITY

I.E.1. The provisions of this Permit are severable and if any provision of this Permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. Invalidation of any State or federal statutory or regulatory provision which forms the basis for any condition of this Permit does not affect the validity of any other State or federal statutory or regulatory basis for said condition.

I.F. DUTIES TO COMPLY

I.F.1. The Permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with R315-3-6.2 or a temporary authorization issued in accordance with R315-3-4.3. Any permit noncompliance, other than noncompliance authorized by an emergency permit or temporary authorization, constitutes a violation of the Utah Solid and Hazardous Waste Act and is grounds for enforcement action, permit termination, revocation and re-issuance or modification of the permit or denial of a permit renewal application.

I.F.2. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under Sections 3007, 3008, 3013, or 7003 of RCRA (42 U.S.C. Sections 6927, 6928, 6934 and 6973), Section 106(a), 104, or 107 of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (42 U.S.C. 9606(a), commonly known as CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), or any other State or federal law providing for protection of human health or the environment from any imminent and substantial endangerment.

I.G. DUTY TO REAPPLY

I.G.1. If the Permittee wishes to continue an activity allowed by this Permit after the expiration date of this Permit, the Permittee shall apply for a new permit a minimum of 180 calendar days prior to the expiration date of this Permit, in accordance with R315-3-3.1(b) and R315-3-2.1(g).

I.H. PERMIT EXPIRATION

I.H.1. This Permit shall be effective for ten years from the effective date of this Permit.

management unit created as a result of operations at the TOCDF and ATLIC. These periods may be extended by request of the Executive Secretary at any time by written notification to the Permittee and the retention times are automatically extended during the course of any unresolved enforcement action regarding the TOCDF, and ATLIC, to three years beyond the conclusion of the enforcement action.

I.P.2. Pursuant to R315-3-3.1(j), records of monitoring information shall specify:

I.P.2.a. The date(s), exact place(s), and time(s) of sampling or measurements;

I.P.2.b. The name(s), title(s), and affiliation(s) of the individual(s) who performed the sampling or measurements:

I.P.2.c. The dates analyses were performed;

I.P.2.d. The individual(s) who performed the analyses;

I.P.2.e. The analytical techniques or methods used: and

I.P.2.f. The results of such analyses, including the Quality Control/Quality Assurance summary.

I.P.3. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The methods used shall be those approved procedures found in Module X: Attachments 2, 3, 20, and 22; or equivalent methods approved in accordance with Condition I.P.4.

I.P.4. The Permittee may substitute analytical methods which are equivalent or superior to those specifically approved for use in this Permit by modifying the Permit in accordance with R315-3-4.3. The modification request shall provide information, in terms of sensitivity, accuracy, and precision (i.e., reproducibility), demonstrating the proposed method(s) requested to be substituted.

I.Q. REPORTING PLANNED CHANGES

I.Q.1. Prior to any planned physical alteration or addition, the Permittee shall give notice to the Executive Secretary of any planned physical alterations or additions to the permitted Hazardous Waste Management Units (permitted units).

I.R. REPORTING ANTICIPATED NONCOMPLIANCE

I.R.1. The Permittee shall give advance notice to the Executive Secretary of any planned changes in the permitted units or activities which may result in noncompliance with requirements of this Permit. Advance notice shall not constitute a defense for any noncompliance.

I.S. CERTIFICATION OF CONSTRUCTION OR MODIFICATION

I.S.1. The Permittee may not commence storage, treatment, or disposal of hazardous waste in any newly permitted unit or in a modified portion of an existing permitted unit until the *Permittee has submitted to the Executive Secretary by certified mail, express mail, or*

hand delivery a letter signed by the Permittee and a registered professional engineer certifying that the permitted unit at the TOCDF and ATLIC haves been constructed or modified in compliance with this Permit; and

I.S.2. The Executive Secretary has reviewed and inspected the modified or newly constructed permitted unit and has notified the Permittee in writing that the permitted unit was found in compliance with the conditions of this Permit; or

I.S.3. If, within 15 calendar days of the date of submission of the letter in Permit Condition I.S.1.. the Permittee has not received notice from the Executive Secretary of the intent to inspect, prior inspection is waived and the Permittee may commence treatment. storage. or disposal of hazardous waste in the permitted unit certified in accordance with Condition I.S.1.

I.S.4. Construction certification shall be performed for all the permitted units listed in Table 2 and the HVAC System.

I.T. **TRANSFER OF PERMIT**

I.T.1. This Permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to R315-3-4. Prior to transferring ownership or operation of the TOCDF during its operating life, the Permittee shall notify the new owner or operator. in writing, of the requirements of R315-3. R315-8, and this Permit.

I.U. **TWENTY-FOUR HOUR REPORTING**

I.U.1. In accordance with R315-3-3.1(l)(6). the Permittee shall orally report to the Executive Secretary any noncompliance with this Permit which may endanger human health or the environment. Any such information shall be reported as soon as possible, but not later than 24 hours from the time the Permittee becomes aware of the noncompliance. Potential endangerment to human health and the environment shall include, but not be limited to:

I.U.1.a. Noncompliance with Condition II.A.1.

I.U.1.b. Any release to the environment of a P999 hazardous waste as listed in R315-2-11(e)(1) or an F999 hazardous waste as listed in R315-2-10(e)(1) which results in the following:

I.U.1.b.i. Confirmed agent concentrations at the DCD Facility boundary due to a release from the TOCDF or ATLIC exceeding the General Population Limits as specified in Table 1 for each agent; or

I.U.1.b.ii. Confirmed agent concentrations exceeding the Work Place Limits specified in Table 1 and Attachment 22 (Agent Monitoring Plan) at any agent monitor within Category C. D. and E areas as specified in Attachment 9 (Contingency Plan).

I.U.1.c. Any release to the atmosphere from the combined stack for the two Liquid Incinerators, the Deactivation Furnace, and the Metal Parts Furnace if the confirmed stack emission level, as defined in Attachment 22 (Agent Monitoring Plan), exceeds the maximum ~~allowable stack concentration~~ Source Emission Limit (SEL) identified for each individual

agent in Table 1 of this Permit. The Permittee shall orally report. as specified in Condition I.U.1., to the Executive Secretary.

I.U.1.d. Any release to the atmosphere from the TOCDF or ATLIC HVAC stack if the confirmed emission level exceeds the level specified in Table 1 for each individual agent.

I.U.1.e. Any indication that a release to the atmosphere from the combined stack for the two Liquid Incinerators, the Deactivation Furnace. and the Metal Parts Furnace. the ATLIC stack, the ATLIC HVAC stack, or from the TOCDF HVAC system stack, where the stack emission level cannot be verified to be an agent monitor anomaly within 24 hours of the time in which the agent monitor indicated the stack emission level exceeded the levels identified for each individual agent in Table 1 of this Permit.

I.U.1.f. Any exceedance of the metals feed rates specified in Module V.

I.U.2. The Permittee shall orally report to the Executive Secretary unintentional spills of P999 in any quantity. Any such information shall be reported in accordance with the procedures of R315-9. as soon as possible. but not later than 24 hours after the spill occurrence.

I.U.3. In accordance with R315-9-1. the Permittee shall orally report to the Executive Secretary any TOCDF or ATLIC spill of any hazardous waste or material which, when spilled becomes a hazardous waste, other than a hazardous waste listed in R315-2-11(e). Any such information shall be reported as soon as possible. but not later than 24 hours after the spill occurrence.

I.U.4. The oral report shall include, but shall not be limited to, the following:

I.U.4.a Information concerning the release of any hazardous waste which may endanger public drinking water supplies. and

I.U.4.b. Any information of a release or discharge of hazardous waste. or of a fire or explosion at the TOCDF, which could threaten the environment or human health.

I.U.4.c. The description of the occurrence and its cause including:

I.U.4.c.i. Name, title. and telephone number of individual reporting;

I.U.4.c.ii. Name. address. and telephone number of the owner or operator;

I.U.4.c.iii. Date, time, and type of incident;

I.U.4.c.iv. Location and cause of incident;

I.U.4.c.v. Name and quantity of materials involved;

I.U.4.c.vi. The extent of injuries, if any;

I.U.4.c.vii. An assessment of actual or potential hazard to the environment and human health, where this is applicable;

MODULE II
GENERAL FACILITY CONDITIONS

II.A. DESIGN AND OPERATION OF FACILITY

II.A.1. The Permittee shall design, construct, maintain, and operate the TOCDF and ATLIC to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, groundwater, or surface water.

II.A.2. The Permittee shall construct all hazardous waste management units in accordance with the approved designs and specifications, except for minor changes deemed necessary by the Permittee to facilitate proper construction of the hazardous waste management units. Minor deviations from the approved designs or specifications necessary to accommodate proper construction and the substitution or the use of equivalent or superior materials or equipment shall be noted on the as-built drawings and the rationale for those deviations shall be provided in narrative form. After completion of construction of each hazardous waste management unit, the Permittee shall submit final as-built drawings and the narrative report to the Executive Secretary as part of the construction certification document specified in Condition I.S. of Module I.

II.B. RECEIPT OF OFFSITE WASTE NOT AUTHORIZED

II.B.1. The Permittee is only authorized and therefore shall only receive hazardous waste from facilities possessing the State/EPA I.D. Number UT5210090002, which includes the Deseret Chemical Depot (DCD) and the Chemical Agent Munitions Disposal System (CAMDS).

II.C. WASTE ANALYSIS PLAN

II.C.1. The Permittee shall follow the procedures of Attachment 2 (Waste Analysis Plan) and Subpart BB and CC requirements (Module X).

II.C.2. Reserved.

II.C.3. All analyses, with the exception of analyses for the parameters for which the EPA has not promulgated methods, conducted pursuant to this Permit, shall be performed by a laboratory with a current Utah Department of Health, State Health Laboratory certification. As an alternative, the Permittee may conduct analysis pursuant to this Permit using methods promulgated by EPA if the Permittee is certified for the EPA-promulgated methods. If the Permittee has not been certified for the method to be used, the Permittee may conduct the analysis provided that the promulgated method QA/QC requirements are satisfied, an application for State Health Laboratory certification has been filed, the Executive Secretary has been provided the MDL studies 14 days prior to the Permittee using the promulgated method, and the Executive Secretary approves the Permittee to use the promulgated method.

II.H. **CONTINGENCY PLAN**

II.H.1. The Permittee shall follow the procedures outlined in Attachment 9 (Contingency Plan).

II.H.2. If agent is detected in the DCD Facility perimeter monitors above the General Population Exposure limits in Table 1, or agent is detected in either the TOCDF Common Stack, ~~or~~ TOCDF MDB HVAC Stack, ATLIC Stack, or ATLIC HVAC Stack and is confirmed, the Permittee shall implement Attachment 9 (Contingency Plan).

II.H.2.a. For TOCDF Common Stack confirmed ACAMS alarms, the Permittee shall cease agent movement at the TOCDF, with the exception of container storage operations and storage and treatment operations in tanks.

II.H.2.b. For TOCDF MDB HVAC Stack ACAMS alarms, the Permittee shall cease all process operations at the TOCDF in accordance with Module X.

II.H.2.c. For ATLIC Stack confirmed ACAMS alarms, the Permittee shall cease agent movement at the ATLIC, with the exception of storage of in-process ton containers in the Glove-Box Subpart X treatment units and storage and treatment operations in tanks.

II.H.2.c. For ATLIC HVAC Stack ACAMS alarms, the Permittee shall cease all process operations at the ATLIC in accordance with Module X.

II.H.3. The Permittee shall not reinstate process operations at the affected facility after shutdown under either Condition II.H.2. or shutdown as a result of a major explosion, as defined in Attachment 9 (Contingency Plan), unless the following has occurred:

II.H.3.a. The Permittee has submitted a request to resume operations to the Executive Secretary accompanied by the following information:

II.H.3.a.i. Detailed description of the accident/incident;

II.H.3.a.ii. The cause of the accident as determined by the results of investigation of the accident;

II.H.3.a.iii. The corrective action(s) taken; and

II.H.3.a.iv. A copy of the notification received by the Permittee from the Chemical Materials Agency (CMA) that operations are authorized to resume.

II.H.3.b. The Executive Secretary has provided the Permittee a written approval to resume process operations.

II.H.4. In the event of an off-site civilian chemical emergency, the Permittee shall comply with the procedures outlined in the Chemical Stockpile Emergency Preparedness Program (CSEPP).

II.H.5. Future modifications of Table 9-2-1 or Table 9-2-2 of Attachment 9 (Contingency Plan) shall be submitted in accordance with R315-3-4.

II.H.6. For TOCDF Common Stack ACAMS alarms at or above 1.0 SEL. the Control Room shall initiate the TOCDF site audible agent alarm (warbler tone), which notifies TOCDF site personnel to immediately mask and await further instructions. Both on-line Common Stack staggered ACAMS must be in alarm at or above 1.0 SEL to require implementation of this site masking contingency. The control room has the option to mask site personnel at anytime for worker protection.

II.H.6.a. For ATLIC LIC Stack ACAMS alarms at or above 1.0 SEL, the Control Room shall initiate the ATLIC site audible agent alarm (warbler tone), which notifies Area 10 personnel to immediately mask and await further instructions. Both on-line ATLIC LIC Stack staggered ACAMS must be in alarm at or above 1.0 SEL to require implementation of this site masking contingency. The control room has the option to mask Area 10 personnel at anytime for worker protection.

II.H.7 For TOCDF MDB HVAC Stack ACAMS alarms at or above 1.0 VSL, the Control Room shall initiate the TOCDF site audible agent alarm (warbler tone), which notifies TOCDF site personnel to immediately mask and await further instructions.

II.H.7.a. For ATLIC HVAC Stack ACAMS alarms at or above 1.0 VSL, the ATLIC Control Room shall initiate the ATLIC site audible agent alarm (warbler tone), which notifies Area 10 personnel to immediately mask and await further instructions.

II.H.8. For TOCDF Category C Area ACAMS alarms above the alarm set point as specified in Attachment 22, the Control Room shall initiate the TOCDF MDB site audible alarm (repetitive beeping tone), which notifies personnel within the TOCDF MDB to mask and evacuate. The Control Room shall also activate the TOCDF MDB agent warning lights and notify site personnel to remain clear of the TOCDF MDB.

II.H.8.a. For ATLIC Category C Area ACAMS alarms above the alarm set point as specified in Attachment 22, the ATLIC Control Room shall initiate the ATLIC site audible alarm (repetitive beeping tone), which notifies personnel within the ATLIC to mask and evacuate the affected area of the ATLIC. The Control Room shall also activate the ATLIC agent warning lights and notify site personnel to remain clear of the affected area of the ATLIC.

II.H.9 For TOCDF Category D Area ACAMS alarms above the alarm set point as specified in Attachment 22, the TOCDF Control Room shall initiate the TOCDF site audible agent alarm (warbler tone). which notifies TOCDF site personnel to immediately mask and await further instructions.

II.H.9.a. For ATLIC Category D Area ACAMS alarms above the alarm set point as specified in Attachment 22, the ATLIC Control Room shall initiate the ATLIC site audible agent alarm (warbler tone), which notifies ATLIC site personnel to immediately mask and await further instructions.

II.I. RECORDKEEPING AND REPORTING

II.I.1. In addition to the recordkeeping and reporting requirements specified elsewhere in this Permit, the Permittee shall comply with the following:

II.I.1.a. The Permittee shall maintain a written Operating Record at the Facility, in accordance with R315-8-5.3 [40 CFR Section 264.73(a) incorporated by reference] for all records identified in R315-8-5.3. [40 CFR Section 264.73(b)(1) through (b)(14) incorporated by reference].

II.I.1.b. The Permittee shall, by March 31 of each year, submit to the Executive Secretary a certification pursuant to R315-8-5.3 [40 CFR Section 264.73(b)(9) incorporated by reference], signed in accordance with R315-3-2.2, that the Permittee has a program in place to reduce the volume and toxicity of hazardous waste generated to the degree determined by the Permittee to be economically practicable; and the proposed method of treatment, storage, or disposal is that most practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment.

II.I.1.c. The Permittee shall submit a biennial report covering the TOCDF activities to the Executive Secretary in accordance with R315-8-5.6 and R315-3-3.1(1)(9).

II.I.1.d. The Permittee shall submit additional reports to the Executive Secretary in accordance with R315-8-5.8.

II.I.2. All reports, notifications, applications, or other materials required to be submitted to the Regional Administrator shall be submitted to the State and Tribal Assistance Office, Assistant Regional Administrator to the EPA Regional address shown in Condition I.AA.3.

II.I.3. All reports, notifications, applications, or other materials required to be submitted to the Executive Secretary shall be submitted to the address shown in Condition I.AA.2.

II.J. **CLOSURE**

II.J.1. The Permittee shall meet the general closure performance standard as specified in R315-8-7 during closure of all TOCDF and Area 10 -hazardous waste management units. Compliance with R315-8-7 shall require closure of each hazardous waste management unit in accordance with Condition II.J. and Attachment 10 (Closure Plan).

II.J.2. All secondary waste generated during the processing of Agents GB, VX, and Mustard at the TOCDF shall be processed by the Permittee prior to the completion of closure of the TOCDF.

II.J.2.a. The ATLIC may be closed before all secondary waste generated during the processing Agent GA and Lewisite at the ATLIC have been processed provided the Permittee processes these wastes during the Autoclave Secondary Waste Campaign associated with DCD and CAMDS secondary wastes contaminated with similar agents.

II.J.3. Reserved.

II.J.4. Reserved.

II.J.5. The Permittee shall decontaminate or dispose of all TOCDF, ATLIC, and Autoclave equipment as specified in Attachment 10 (Closure Plan).

II.J.6. The Permittee shall provide certification statements that each TOCDF and Area 10 hazardous waste management unit has been closed in accordance with the applicable specifications in Attachment 10 (Closure Plan), as required by R315-8-7.

II.J.7. The Permittee shall notify the Executive Secretary at least 45 calendar days prior to the closure date of any hazardous waste management unit is expected to begin.

II.J.8. In the event that any hazardous waste management unit cannot be clean closed by removing hazardous waste, hazardous waste constituents, contaminated subsoil, and any contaminated groundwater as specified in Attachment 10 (Closure Plan), the Permittee shall submit the modified closure and post-closure plan for that hazardous waste management unit to the Executive Secretary, as a permit modification request, in accordance with R315-3-4, within 30 calendar days of the date that the Executive Secretary notifies the Permittee in writing that the unit shall be closed as a landfill, in accordance with R315-8-7 (e.g., Post Closure Plan).

II.J.9. Within 90 calendar days of the Permittee's receipt of the written approval from the Executive Secretary, in accordance with R315-3-4, of the modified closure plan and the post-closure plan required by Condition II.J.8., the Permittee shall close the hazardous waste management unit in accordance with the approved plans.

II.K. CLOSURE PLAN - COMPLIANCE SCHEDULE

II.K.1. The Permittee shall submit a permit modification request that updates Attachment 10 (Closure Plan) for TOCDF associated hazardous waste management units in the second quarter of calendar year 2010.

II.K.2. The Permittee shall submit a permit modification request that updates Attachment 10 (Closure Plan) for ATLIC associated hazardous waste management units no later than the first quarter of calendar year 2011.

II.L. EQUIVALENT MATERIALS/INFORMATION

II.L.1. For certain equipment, materials, or minor information specified in this Permit and documents listed in Attachment 3 (Sampling, Analytical, and QA/QC Procedures) that do not affect the analytical methods in the documents listed in Attachment 3 (Sampling, Analytical, and QA/QC Procedures), the Permittee is allowed to use the equivalent or superior equipment, materials, or minor information. Use of such equivalent or superior items shall not be considered a modification of the Permit, but the Permittee shall place in the Operating Record (prior to the institution of such revision) the revision, accompanied by a narrative explanation, and the date the revision became effective. The Executive Secretary may judge the soundness of the revision during inspections of the TOCDF and take appropriate action. The format of tables, forms, and figures, is not subject to the requirements of this Permit and may be revised at the Permittee's discretion.

II.M. FINANCIAL ASSURANCE FOR FACILITY CLOSURE

MODULE IV - TANK SYSTEMS

IV.A. APPLICABILITY

IV.A.1. The requirements of this Module pertain to the storage and treatment of hazardous waste in the Agent Collection System (ACS). Spent Decontamination System (SDS) (both at TOCDF and ATLIC). ~~and~~ Brine Reduction Area (BRA) and Lewisite Collection System (LCS) tank systems identified in Condition IV.B.1. The Permittee shall comply with R315-8-10 and the conditions of this Permit for all tank systems.

IV.B. WASTE IDENTIFICATION AND TANK USAGE

IV.B.1. The Permittee may only store at the listed maximum capacity, and treat by detoxification (T29) in accordance with Attachment 2 (Waste Analysis Plan), if applicable, the hazardous wastes listed for the following tank systems:

TOCDF HAZARDOUS WASTE STORAGE AND TREATMENT TANK SYSTEMS				
Tank Number	**Maximum Storage Capacity Gallons**	**Nominal Tank Dimensions [1]**	**Allowable Waste Codes**	**Permitted Management Activity [2]**
ACS-TANK-101	500 (agent) 582 (other permitted liquids, Note 2)	3'-6" diameter, 9'-9" high	F999, P999, D002, D003, D004, D006, D007, D008, D009, D010, D011, D028, D034, D039	Storage of agent, miscellaneous agent contaminated liquids, decontamination solutions for maintenance or agent change-over, and non-hazardous agent simulants
ACS-TANK-102	1,130	4'-6" diameter, 11'-9" high	F999, P999, D002, D003, D004, D006, D007, D008, D009, D010, D011, D028, D034, D039	Storage of agent, miscellaneous agent contaminated liquids, decontamination solutions for maintenance or agent change-over, and non-hazardous agent simulants
SDS-TANK-101 SDS-TANK-102 SDS-TANK-103	2,200 per tank	6'-0" diameter 11'-6" high	F999, P999, D002, D003, D004, D006, D007, D008, D009, D010, D011,D018, D019, D022, D028, D034, D039, D040, D043	Storage and treatment of spent decontamination solutions, miscellaneous agent contaminated liquids from a spill, and liquid wastes from Area 10 Glovebox Operations

BRA-TANK-101 BRA-TANK-102 BRA-TANK-201 BRA-TANK-202	42,900 per tank	20'-0" diameter 20'-0" high	F999, D002, D004 through D011	Storage and treatment spent scrubber brines and Pollution Abatement System (PAS) liquids

ATLIC

HAZARDOUS WASTE STORAGE AND TREATMENT TANK SYSTEMS

Tank Number	Maximum Storage Capacity Gallons	Nominal Tank Dimensions [1]	Allowable Waste Codes	Permitted Management Activity
LCS-TANK-8511	1,020	5'- 3" diameter 6'-8" high	P999, F999, D002, D004, D007, D009, D010	Storage of Lewisite (L) Agent, miscellaneous agent contaminated liquids, and decontamination solutions during closure
NSF-TANK-8514 LCS-TANK-8516	1,020	5'- 3" diameter 6'-8" high	P999, F999, D002, D004, D007, D008 D009, D010	Storage of Spent Nitric generated from L TCs rinse-out. 3 M or greater Nitric Acid is added to treat agent concentrations to less than the WCL
SDS-TANK-8523	1,020	5'- 3" diameter 6'-8" high	F999, D002, D004, D007, D008, D021, D009, D010	Storage for spent NaOH solution used to decontaminate the interior of emptied GA Ton Containers, process equipment, water used to rinse out both GA and L TCs. NaOH decontamination solution is added to treat for agent concentrations greater than the WCL
LCS-TANK-8534	1,020	5'- 3" diameter 6'-8" high	P999, F999, D002, D004, D007, D008, D009, D010 D021	Contingency storage for major spills from tanks and/or ancillary equipment located in the TOX to include LCS-TANK-8511, SDS-TANK-8523, and NSF-TANK-8514

NOTES: 1. See Attachment 16 for design information for the ACS, SDS, LCS, NFS and BRA tank systems.

2. Miscellaneous agent contaminated liquids are defined in Attachment 2 (Waste Analysis Plan), Section 2.2.1.15.

IV.B.2. *The sumps listed in Table 4, used to collect decontamination solutions, agent and* miscellaneous liquid spills are subject to the requirements of this Module. These sumps, also called Intermittent Collection Units (ICUs) by the Permittee, may be used to treat agent and agent contaminated hazardous wastes with decontamination solution before they are pumped to the permitted SDS tank system. Only wastes with the codes F999, D002, D003, D004, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D028, D034, D039, D040, D043 and P999 are allowed in the SDS sumps. The maximum capacity of the SDS sumps as shown in Table 4 shall not be exceeded, except as allowed by Condition IV.B.5 or Attachment 16 (Tank Systems). Wastes shall not remain in these sumps for more than 24 hours, except as allowed by Conditions IV.B.6. and IV.B.7.

IV.B.3. Off-site generated hazardous wastes shall not be placed in any of the permitted tanks or sumps.

IV.B.4. Laboratory wastes shall not be placed in any of the permitted tanks and sumps.

IV.B.5. Notwithstanding the requirements specified elsewhere in this Permit, the Permittee may exceed the capacity of the sumps identified in Table 4 that are not listed in this Condition if, during a toxic area entry, the sump pump ceases to work and the subsequent decontamination of entrants causes the sump capacity to be exceeded and the decontamination is necessary to ensure a safe exit from the room or in the event of a failure of any of the SDS or ACS tanks. If this occurs, the Permittee shall record in the Operating Record the circumstances that caused the overfill and shall remove the waste as soon as it can be safely accomplished in accordance with Condition IV.B.2. This exclusion does not apply to the following sumps: SDS-PUMP-101, 102, 103, 104, 130, 131, 133, 136, 137, 138, 139, 140, 141, 142, 144, 156, 167, 173, 192, 193, BRA-PUMP-104, 204, 103.

IV.B.6. Notwithstanding the requirements specified elsewhere in this Permit, the Permittee may store waste in the sumps listed in Table 4 for greater than 24 hours if a toxic area entry necessary to support waste removal cannot be initiated or completed for any of the following reasons:

IV.B.6.a. Agent concentrations exceed the authorized level for the PPE to be worn.
IV.B.6.b. A breach or tear occurs in a DPE suit.
IV.B.6.c. A loss of communications occurs between the parties involved in an entry.
IV.B.6.d. The room temperature is too high to allow an entry.
IV.B.6.e. Any of the participants in an entry suffer from an illness or heat stress.
IV.B.6.f. A loss of Life Support System (LSS) air occurs.
IV.B.6.g. A loss of either utility power or the Heating, Ventilation, and Air Conditioning (HVAC) system occurs.
IV.B.6.h. Explosive components are present, endanger worker safety, and cannot be removed so as to allow removal of waste from the sump within 24 hours.

IV.B.7. For those instances where waste is not removed from the sumps within 24 hours as allowed by Condition IV.B.6., the Permittee shall record in the Operating Record the circumstances that prevented removal within 24 hours and shall remove the waste as soon as it can be safely accomplished.

IV.C. GENERAL OPERATING REQUIREMENTS

IV.C.1. The Permittee shall not place incompatible waste or material in a tank system if the waste or material could cause the tank, its ancillary equipment, or the secondary containment sump to rupture, leak, corrode, or otherwise fail.

IV.C.2. The Permittee shall not place hazardous wastes in a tank or its ancillary equipment that has previously held an incompatible material until the tank or ancillary equipment has been properly decontaminated. The Permittee shall not place a different chemical agent in the ACS tanks until all sludge is removed and the tank has been properly decontaminated. The Permittee shall not place a different agent in the sump systems until the campaign changeover requirements for sumps specified in Attachment 5 (Inspection Plan) have been satisfied.

IV.C.3. Any permitted tank system used to store or treat a hazardous waste at the TOCDF and ATLIC shall be managed in accordance with Module X.

IV.C.4. The design and operating descriptions of the permitted tank systems are provided in Attachment 16 (Tank Systems). Operation of the permitted tank and sump systems shall comply with Attachment 16 (Tank Systems).

IV.C.5. Waste shall not be added to any of the tanks described in Condition IV.B.1. unless the associated tank's level control instrumentation identified in Attachment 6 (Calibration Plan) is operational in accordance with the manufacturers' specifications and the level devices are fully calibrated.

IV.C.6. If treatment is conducted in a tank system, sufficient freeboard shall remain so the permitted tank capacity shall not be exceeded when decontamination solutions are added.

IV.C.7. Any permitted tank used to store or treat a hazardous waste at the TOCDF or ATLIC shall be equipped with a level control device that prevents the tank system from exceeding the permitted capacity.

IV.C.8. The Permittee may transfer liquids accumulated in PAS-SUMP-110 to the Brine Surge Tanks (BSTs) provided that prior to transfer, the Permittee has analyzed the liquids in accordance with Attachment 2 (Waste Analysis Plan).

IV.D. SPECIFIC OPERATING CONDITIONS – TOCDF AGENT STORAGE TANKS

IV.D.1. The only hazardous wastes or other materials allowed in ACS-TANK-101 and ACS-TANK-102 are liquid hazardous waste chemical agents, miscellaneous agent contaminated liquid wastes, non-hazardous chemical agent simulants, and decontamination solutions used to decontaminate the system after agent campaigns and prior to maintenance activities that will be treated in the Liquid Incinerator (LIC) primary combustion chambers.

IV.D.2. The only chemical agents that can be placed in the ACS, ACS-TANK-101, and ACS-TANK-102 are GB, VX and Mustard (H/HD/HT) and their naturally occurring break-down products.

IV.D.3. The miscellaneous agent contaminated wastes allowed in the ACS. ACS-TANK-101, and ACS-TANK-102 are identified in Attachment 2 (Waste Analysis Plan), Section 2.2.1.15.

IV.D.4. The maximum storage capacity of the Agent Holding Tank, ACS-TANK-101, shall be 582 gallons, except for agent. No more than 500 gallons of agent shall be stored in this tank. The maximum tank level, measured from the tangent of the bottom dome, shall not exceed seven feet six inches for non-agent wastes and six feet three inches for agent.

IV.D.5. The maximum storage capacity of Agent Holding Tank, ACS-TANK-102, shall be 1,130 gallons. The maximum tank level, measured from the tangent of the bottom dome, shall not exceed eight feet nine inches.

IV.E. SPECIFIC OPERATING CONDITIONS – TOCDF SPENT DECONTAMINATION STORAGE TANKS

IV.E.1. The only hazardous waste or materials that shall be placed in SDS-TANK-101, SDS-TANK-102, and SDS-TANK-103 are sodium hypochlorite decontamination solutions, sodium hydroxide solutions, agent breakdown products resulting from decontamination, the miscellaneous liquid wastes identified in Attachment 2 (Waste Analysis Plan) Section 2.2.1.15, spent bleach from PPE/personnel decontamination in the Munitions Demilitarization Building (MDB) using bleach bottles, wash-down of equipment or personnel with soap and water, major spills in accordance with Condition IV.E.4, run-off from fire suppression efforts as described in Attachment 9 (Contingency Plan), and cleaning solutions used to decontaminate the system after agent campaigns and prior to maintenance activities.

IV.E.2. The maximum storage capacity of SDS-TANK-101, SDS-TANK-102, and SDS-TANK-103 shall not exceed 2,200 gallons in each tank. The maximum tank level, measured from the tangent of the bottom dome, shall not exceed nine feet five inches.

IV.E.3. The only treatment allowed in the SDS Tanks shall be the addition of approved decontamination solutions (sodium hypochlorite or sodium hydroxide decontamination solutions) when the chemical agents GB and VX are detected at or above 20 parts per billion (ppb), and the mustard compounds H/HD/HT are detected at or above 200 ppb.

IV.E.4. The Permittee shall maintain a minimum of one SDS Tank (SDS-TANK-101, SDS-TANK-102, or SDS-TANK-103) free of waste when chemical agent (P999) is being processed or stored inside the MDB to be used in the event of a spill as a result of a tank failure, munition over-pack failure, or munition/bulk item failure.

IV.E.5 The Permittee may accumulate waste, identified in Condition IV.B.1., in all three SDS Tanks when no chemical munitions and bulk items are inside the MDB and no chemical agents are stored in ACS-TANK-101 and ACS-TANK-102, such as during agent campaign changeovers or extended plant shutdowns.

IV.E.6. In the event of a spill described in IV.E.4., munitions that have passed the Explosive Containment Vestibule (ECV) may continue to be processed. The Permittee shall not process any other munitions until the circumstances which resulted in the spill have been rectified, the spill has been cleaned up, and a minimum of one SDS tank is free of waste, as specified in Condition IV.E.4.

IV.E.7. The Permittee shall manage waste accumulated in each SDS tank as an operating batch. A batch of waste shall be the volume of liquid accumulated in the tank when filling of the tank has been stopped and the Permittee has determined that no additional waste will be added to the tank before it is to be emptied. Prior to emptying the tank, the Permittee shall sample and analyze each batch of waste in accordance with the Attachment 2 (Waste Analysis Plan) and Module X.

IV.E.8. Each batch of liquid waste accumulated in the SDS tanks shall be incinerated in the secondary chambers of the TOCDF LICs. Only liquid wastes having an agent concentration at or below 20 ppb for GB, 20 ppb for VX, and 200 ppb for H/HT/HD shall be incinerated in the secondary chamber of the LICs.

IV.F. SPECIFIC OPERATING CONDITIONS — TOCDF BRINE SURGE TANKS (BSTs)

IV.F.1. The only hazardous wastes that shall be placed in BSTs, BRA-TANK-101, BRA-TANK-102, BRA-TANK-201, and BRA-TANK-202, are spent scrubber brines from the incinerator Pollution Abatement Systems (PASs), liquid wastes from Sump 110, decontamination solutions, liquids collected in the BST secondary containment system, and decontamination or cleaning solutions used to decontaminate the system after agent campaigns and prior to maintenance activities.

IV.F.2. Reserved

IV.F.3. No ignitable or reactive waste may be stored in the BSTs.

IV.F.4. The maximum storage capacity of the BSTs, BRA-TANK-101, BRA-TANK-102, BRA-TANK-201 and BRA-TANK-202, shall be 42,900 gallons per tank. The maximum level of liquid in the tank, measured from the bottom of the tank, shall not exceed 18 feet three inches.

IV.F.5. The only treatment allowed in the BSTs shall be the addition of approved decontamination solutions when the chemical agents GB and VX are detected in the brine above 20 ppb, and the mustard compounds H/HD/HT are detected in the brine above 200 ppb.

IV.F.6. Contaminated liquids shall not be pumped from the BSTs until concentration levels are at or below 20 ppb for agents GB and VX, and 200 ppb for mustard compounds H/HD/HT.

IV.F.7. The Permittee shall manage waste accumulated in the BSTs in batches. A batch of waste shall be the volume of liquid accumulated in the tank when filling of the tank has been stopped and the Permittee has determined that no additional waste will be added to the tank before it is to be emptied. At such time, the Permittee shall sample and analyze the waste contained in that tank in accordance with the Attachment 2 (Waste Analysis Plan).

IV.F.8. Waste in the BST System shall be transferred off site to an approved facility for treatment and disposal.

IV.G. SPECIFIC OPERATING CONDITIONS – ATLIC LEWISITE AGENT HOLDING TANK

IV.G.1. The only hazardous wastes or other materials allowed in LCS-TANK-8511 are liquid hazardous waste chemical agents, non-hazardous chemical agent simulants, and decontamination solutions used to decontaminate the system after agent campaigns and prior to maintenance activities or closure.

IV.G.2. The only chemical agent that can be placed in LCS-TANK-8511 is Lewisite and associated break-down products.

IV.G.3. The maximum storage capacity of the LCS-TANK-8511 shall be 1,020 gallons. The maximum tank level, measured from the tangent of the bottom dome, shall not exceed feet 67.5 inches.

IV.H. SPECIFIC OPERATING CONDITIONS – ATLIC NITRIC ACID HOLDING TANK

IV.H.1. The only hazardous wastes or other materials allowed in NSF-TANK-8514 and LCS-TANK-8516 are liquid hazardous waste generated from the rinsing of L Ton Containers.

IV.H.2. The maximum storage capacity of each NSF-TANK-8514 and LCS-TANK-8516 shall be 1,020 gallons. The maximum tank level, measured from the tangent of the bottom dome, shall not exceed 67.5 feet inches.

IV.H.3. The only treatment allowed in NSF-TANK-8514 and LCS-TANK-8516 shall be the addition of approved decontamination solutions (sodium hydroxide decontamination solutions) or Nitric Acid Solution when L is detected at concentrations equal to or greater than 200 parts per billion (ppb).

IV.I. SPECIFIC OPERATING CONDITIONS – ATLIC SPENT DECONTAMINATION HOLDING TANK

IV.I.1. The only hazardous waste or materials that shall be placed in LCS-TANK-8523 are sodium hypochlorite decontamination solutions and agent breakdown products resulting from the rinsing out and decontamination of Agent GA Ton Containers, rinse water generated from the rinsing of Agent GA and L Ton Containers, and spent decontamination solutions generated from the decontamination of equipment, structures, and personal protective equipment.

IV.I.2. The maximum storage capacity of LCS-TANK-8523 shall be 1,020 gallons. The maximum tank level, measured from the tangent of the bottom dome, shall not exceed 67.5 inches.

IV.I.3. The only treatment allowed in LCS-TANK-8523 shall be the addition of approved decontamination solutions (sodium hydroxide decontamination solutions) when Agent GA is detected at concentrations equal to or greater than 20 ppb, or when L is detected at concentrations equal to or greater than 200 ppb.

IV.I.4. The Permittee shall manage waste accumulated in LCS-TANK-8523 as an operating batch. A batch of waste shall be the volume of liquid accumulated in the tank when filling of the tank has been stopped and the Permittee has determined that no additional waste will be added to the tank before it is to be emptied. Prior to emptying the tank, the Permittee shall sample and analyze each batch of waste in accordance with the Attachment 2 (Waste Analysis Plan) and Module X.

IV.J. SPECIFIC OPERATING CONDITIONS – ATLIC MAJOR SPILL COLLECTION TANK

IV.J.1. The Permittee shall maintain LCS-TANK-8534 free of waste when chemical agent (P999) is being processed or stored inside the ATLIC to be used in the event of a major spill as a result of a tank, ancillary equipment, or ton container failure.

IV.J.2. In the event of a major spill LCS-TANK-8534 may be used to store any one of the following waste that are processed or generated at the ATLIC; Agents GA or Lewisite, Spent Decontamination Solutions and ton container rinse water, or Spent Nitric Acid. Only one type of waste may be stored in LCS-TANK-8534 at a time.

IV.J.3. The maximum storage capacity of LCS-TANK-8534 shall be 1,020 gallons. The maximum tank level, measured from the tangent of the bottom dome, shall not exceed 67.5 inches.

IV.J.4. The Permittee may complete the processing of any ton containers that are currently in the Glove Box Miscellaneous Treatment Units, but shall discontinue receipt of additional ton containers until the circumstances which resulted in the spill have been rectified, the spill has been cleaned up, and LCS-TANK-8534 is empty, to include the lower portion of the tank that is domed.

IV.J.5. Prior to processing waste stored in LCS-TANK-8534 the Permittee shall comply with the waste analysis requirements specified in Attachment 2 for the waste stream being stored.

IV.J.6. Waste stored in LCS-TANK-8534 shall be treated in the combustion chamber or Hazardous Waste Management Unit specified for the waste stream being stored in Conditions IV.G.1, IV.H.1, IV.I.5, or IV.K.1. Agent GA shall be treated in the Primary Combustion Chamber of the ATLIC LIC.

IV.~~G~~K. SUMPS DESIGNATED AS 24-HOUR INTERMITTENT COLLECTION UNITS (ICUs)

IV.~~G~~K.1. Except as allowed by Conditions IV.B.6. and IV.B.7., hazardous wastes may be stored in the sumps (ICUs) identified in Table 4 for a period not to exceed 24 hours. Except as allowed by Conditions IV.B.6. and IV.B.7., sumps shall be pumped at least once every 24 hour period if liquids are detected.

IV.~~G~~K.2. Compliance with Condition IV.~~G~~L.1. shall be documented in the Operating Record by recording the time and the duration between activation and deactivation of each sump's low level indicator instrument.

IV.~~H~~L. OPERATING PROCEDURES FOR BRINE TANKS SECONDARY CONTAINMENT SUMP

IV.~~H~~L.1. Except for the presence of liquid in the sumps allowed by Attachment 5 (Inspection Plan), if the Permittee detects liquids in the BST System sump (identified by the associated pump number, BRA-PUMP-103 or BCS-PUMP-107 in Table 4), within 24 hours, the Permittee shall manage the liquids using one of the three following methods:

IV.~~H~~L.1.a. The accumulated liquids can be transferred to a BST where the liquids shall be managed as a hazardous waste;

IV.~~H~~L.1.b. The accumulated liquids can be transferred off site where these accumulated liquids will be managed as a hazardous waste (spent scrubber brines) as specified in Section 2.2.2.13 of Attachment 2 (Waste Analysis Plan); or

IV.~~H~~L.1.c. If it can be demonstrated, in accordance with R315-2-3, that the material removed from the sump is precipitation, which does not contain listed hazardous wastes, the material may be managed as a non-hazardous waste. For the purposes of demonstrating that the material does not contain a listed waste, or is not derived from a listed waste, the analytical results obtained shall indicate that there is no detectable chlorine, the pH is neutral, the concentrations for TC metals and TC organics (identified by footnote 3 in Table 2-1 in Attachment 2) are below the corresponding detection limits, and the specific gravity is equal to 1 ± 5%. If these criteria are met, the material may be managed as a non-hazardous waste.

IV.~~H~~L.2. Snow and ice shall not be allowed to accumulate or remain within the Brine Tank Secondary Containment System. Snow, ice, and liquid shall be removed within 24 hours of the end of the precipitation event. Snow and ice shall be managed as specified in Condition IV.~~H~~M.1.

IV.~~H~~L.3. Sludges or solids collected in the BST System sump shall be analyzed for TCLP metals and TCLP organics. If the material from a representative sample is found to contain TCLP metals or TCLP organics above the toxicity characteristic regulatory level, the material shall be managed as a hazardous waste. If the metals or organics are all below the toxicity characteristic regulatory level, the material may be managed as a non-hazardous waste.

IV.~~I~~M. INSPECTION SCHEDULES AND PROCEDURES

IV.~~I~~M.1. The Permittee shall inspect the tank and sump systems in accordance with the inspection schedule provided in Attachment 5 (Inspection Plan).

IV.~~I~~M.2. If any SDS or BRA tank has been out of service for 360 or more days, it shall be recertified by an independent, qualified registered professional engineer that the tank system is capable of storing liquid hazardous waste for the intended life of the system. The Permittee shall have this certification performed before the tank is put back into service. The certification report shall then be submitted to the Executive Secretary within 15 days after returning the tank system to service.

IV.~~J~~N. RESPONSE TO LEAKS OR SPILLS

IV.~~J~~N.1. In the event of a leak or a spill from a tank system, from a secondary containment sump system, or if a system becomes unfit for continued use, the Permittee shall remove the system from service immediately and initiate the following activities:

IV.~~J~~N.1.a. Stop the flow of hazardous waste into the system and inspect the system to determine the cause of the release.

IV.~~J~~N.1.b. Contain any visible release to the environment. The Permittee shall immediately conduct a visual inspection of all releases to the environment and based on that inspection: (1) prevent further migration of the leak or spill to soils or surface water and (2) remove and properly dispose of any visible contamination of the soil or surface water.

IV.~~J~~N.1.c. Remove waste and accumulated precipitation from the system within 24 hours of the detection of the leak to prevent further release and allow inspection and repair of the system. If the Permittee finds that it will be impossible to remove the waste within this time period, the Permittee shall notify the Executive Secretary as soon as possible but not to exceed 24 hours of that determination.

IV.~~J~~N.1.d. For a release caused by a spill that has not permanently damaged the integrity of the system, the Permittee shall remove the released waste and make the necessary repairs to fully restore the tank or sump system before it is put back into service.

IV.~~J~~N.2. If the Permittee replaces a component of the tank system to eliminate a leak, the replacement component shall satisfy the requirements for new tank systems or components in R315-8-10 [40 CFR Sections 264.192 and 264.193 incorporated by reference].

IV.~~J~~N.3. After all major tank or sump system repairs, the Permittee shall obtain a certification by an independent, qualified registered professional engineer that the repaired system is capable of handling hazardous wastes without release for the intended life of the system before returning the system to service. Examples of major repairs are: installation of an internal liner, repair of a ruptured tank, or repair or replacement of a secondary containment vault.

IV.~~K~~O. CALIBRATION REQUIREMENTS

IV.~~K~~O.1. The Permittee shall maintain, calibrate, and operate all process monitoring, control, and recording equipment as specified in Attachment 6 (Calibration Plan), whenever hazardous wastes are present in a permitted tank system.

IV.~~L~~P. RECORD KEEPING AND REPORTING

IV.~~L~~P.1. Except as allowed in Condition IV.L.2., the Permittee shall orally report to the Executive Secretary within 24 hours of detection when a leak or spill occurs from a tank system or secondary containment system.

IV.~~L~~P.2. Releases from a tank system that are contained within a secondary containment system need not be reported unless they occur from an unexplained source. All pertinent information about a release shall be recorded in the facility Operating Record.

IV.~~L~~P.3. Within 30 calendar days of detecting a release to the environment from a tank system or a secondary containment system, except for P999 and F999 wastes which require a written report as specified by Condition I.U., the Permittee shall report the following information to the Executive Secretary:

IV.~~L~~P.3.a. Likely route of migration of the release:

IV.~~L~~P.3.b. Characteristics of the surrounding soil (including soil composition, geology, hydro geology, and climate) including proximity of down gradient drinking water, surface water, and populated areas:

IV.~~L~~P.3.c. Results of any monitoring or sampling conducted in connection with the release. If the Permittee finds it will be impossible to meet the written report time period, the Permittee shall provide the Executive Secretary with a schedule of when the results will be available. This schedule shall be provided in writing before the required submittal period expires;

IV.~~L~~P.3.d. Description of response actions taken or planned to minimize the spill impact on the environment;

IV.~~L~~P.3.e. Describe the repairs, design changes, or operating procedures to the tank system to minimize the potential for additional spills or leaks.

IV.~~L~~P.4. The Permittee shall keep on file at the facility the written certification statements by those *persons that certify the design, installation, and integrity of the tank systems until such* time that those tank systems are certified closed.

IV.~~L~~P.5. In the event that a tank exceeds the maximum allowable capacity designated for that system, the Permittee shall notify the Executive Secretary in writing within seven days of discovery and document the following information in the facility Operating Record:

IV.~~L~~P.5.a. The date and time of occurrence:

IV.~~L~~P.5.b. The tank system involved and its contents at the time of the occurrence;

IV.~~L~~P.5.c. Any other available tank storage volume within the system. If no additional storage capacity was available within the storage system, indicate if the associated collection and treatment activities were automatically stopped;

IV.~~L~~P.5.d. A description of whether the tank system automatically switched from the High-High level tank to a tank with the available storage capacity and if the tank intake valves were automatically closed;

IV.~~L~~P.5.e. Any associated incinerator automatic waste feed cutoff interlocks. Identify the interlocks and whether the interlocks were successfully activated; and

IV.~~L~~P.5.f. A description of the operating control procedures that allowed the tank system to exceed the maximum allowable storage capacity (e.g., why the operator was not successful in managing the waste within the high level volume working capacity).

IV.~~L~~P.6. The Permittee shall document and record the results of each SDS tank waste analysis and any subsequent treatment.

IV.~~L~~P.7. The Permittee shall document and record the results of each BST waste analysis and any subsequent treatment.

IV.~~M~~Q. CLOSURE

IV.~~M~~Q.1. Partial Closure

IV.~~M~~Q.1.a. At the conclusion of each agent campaign, the TOX shall be thoroughly decontaminated; all decontamination films shall be removed using an appropriate rinse; all clouded observation windows that compromise the ability to view operations shall be cleaned or replaced; and maintenance and repair shall be performed. The Permittee will submit in writing to the Executive Secretary, a request for partial closure of the room and tank systems, since the agent is being changed. Upon approval for partial closure by the Executive Secretary, the next campaign will commence, when authorized, and when it is appropriate to do so.

IV.~~M~~Q.2. The Permittee shall close the Tank Systems in accordance with Attachment 10 (Closure Plan).

MODULE V LONG-TERM INCINERATION

V.A. *GENERAL CONDITIONS FOR INCINERATORS AND FURNACES*

V.A.1. CONSTRUCTION AND MAINTENANCE

V.A.1.a. The Permittee shall maintain each incinerator and furnace in accordance with the design plans and specifications. Design plans and specifications shall be provided to representatives of the Executive Secretary upon request.

V.A.1.b. Modification to the design plans and specifications for an incinerator or a furnace shall be allowed only in accordance with Condition II.A.2.

V.A.1.c. The Permittee shall install and test all process monitoring and control instrumentation for each incinerator and furnace in accordance with the design drawings in Attachment 11, and in accordance with the performance specifications and maintenance procedures contained in Tables 6-A-1 (LIC 1) and 6-A-2 (LIC 2); Table 6-B (MPF); ~~and~~ Table 6-C (DFS); and Table 6-E (ATLIC) in Attachment 6 (Instrument Calibration Plan and Incinerator Waste Feed Interlock Function Test).

V.A.1.d. Reserved.

V.A.1.e. The Permittee shall maintain each incinerator or furnace such that when operated. in accordance with the operating requirements specified in this Permit, each incinerator or furnace shall meet the applicable performance standards specified in Section V.A.2.

V.A.1.f. The Permittee shall maintain and operate a minimum of one monitor for each oxygen (O_2) and carbon monoxide (CO) continuous emission monitor specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables). If either the CO or O_2 monitors fail, and no certified backup CEMS is on line. for continuous monitoring then feed to the incinerator or furnace shall be stopped.

V.A.1.f.i. For the MPF and DFS only, a back up O_2 and CO monitor shall be on line in case the primary monitor fails or malfunctions during waste feed. The Permittee shall use the backup monitor until the waste has exited the furnace or furnace system. The monitor that failed or malfunctioned shall be replaced or repaired prior to resuming feed to the furnace or furnace system.

V.A.1.g. The Permittee shall maintain and operate Depot Area Air Monitoring System (DAAMS) tubes and Automatic Continuous Air Monitoring System (ACAMS) monitor on each incinerator or furnace exhaust duct and DAAMS tubes and staggered ACAMS monitors on the common stack as specified in Attachments 19 (Instrumentation and Waste Feed Cut-off Tables) and 22 (Agent Monitoring Plan).

V.A.1.g.1. When processing Agent GA the Permittee shall maintain and operate DAAMS tubes and *staggered ACAMS monitors on the ATLIC Stack as specified in Attachments 19* (Instrumentation and Waste Feed Cut-off Tables) and 22 (Agent Monitoring Plan).

V.A.1.g.2. When processing Lewisite the Permittee shall maintain and operate either DAAMS tubes and staggered MINICAMS monitors on the ATLIC Stack or two sets of staggered MINICAMS, the second set of staggered MINICAMS shall be configured with dissimilar analytical columns from the first set. The second MINICAMS set shall be operated for the purpose of confirming agent alarms associated with the first set.

V.A.1.h. Major maintenance changes shall require recalibration of the Continuous Emission Monitoring Systems (CEMS) in accordance with the most stringent requirements of 40 CFR Part 266, Appendix IX, 40CFR Part 60, Appendix B, Performance Specification Tests and Attachment 20 (CEMS Monitoring Plans), Section 8.a.7. A certified monitor may receive minor maintenance and repairs and still remain certified in accordance with V.A.1.h.i and 40 CFR 266, Appendix IX.

V.A.1.h.i. The following table categorizes the CEMS repairs and maintenance, and the re-certification step, if required, prior to placing the instrument on line for monitoring:

Maintenance operation	Repairs/Maintenance Included	Operational Validation Steps Required
Modification of Critical Components	•Changes to probe construction material •Changes of detection method •Addition or deletion of sample conditioning components	•Relative Accuracy Test Audit (RATA). •7-Day Calibration Drift Test. •Response Time Test. •Calibration Error Test. Note: This is a full CEMS re-certification.
Major	•Detector change or repair. •Circuit card change or repair. •Power supply change or repair.	•7-Day Calibration Drift Test. •Response Time Test. •Calibration Error Test.
Minor (Maintenance/Repairs)	•All other maintenance and repair activities not addressed above. These include, but are not limited to: •Analyzer adjustment or optimization. •Cell replacement. •Pump repair/replacement. •Filter replacement. •Sample conditioner repair or replacement. •Probe replacement. •Tubing replacement.	•Re-calibration of instrument. •Calibration Error Test. •Response Time Test Note: Re-certification in accordance with 40 CFR 266, Appendix IX is not required for monitors receiving Minor maintenance or repairs. The monitor shall remain certified.

V.A.1.H.ii. The following table categorizes the ***API-300EM*** CO analyzer repairs and maintenance, and the recertification step, if required, prior to placing the instrument on line for monitoring:

Maintenance Operation	Repairs/Maintenance Included	Steps Required to Re-Certify for Operations
Modification of Critical Components	• Replacement or update software • Replacement of software chip • Replacement of CPU	Full CEMS analyzer recertification including: • Relative Accuracy Test Audit (RATA) • 7-Day Calibration Drift • Response Time Test • Calibration Error Test
Major	• Change out of detector • Synchronous/Demodulation board replacement • Source • GCF wheel • GDF wheel motor	• Calibration Error Test, Calibration • Calibration Error Test, Calibration, Dark Calibration • Calibration • 7 Day Calibration Drift
Minor (Maintenance/Repairs)	• Front panel filter • Any electronic board other than Synchronous/ Demodulation	• Calibration • Calibration

V.A.1.i. For the monitors specified in V.A.1.f., the replacement monitors, shall be certified in accordance with Condition V.A.4.f.

V.A.1.j. Replacement ACAMS/MINICAMS shall be available for the monitors specified in V.A.1.g. These monitors shall be certified in accordance with Attachment 3 (Sampling, Analytical, and QA/QC Procedures).

V.A.1.k. Replacement of the oxygen (O_2) and carbon monoxide (CO) monitors specified in V.A.1.f. shall be in accordance with the following:

V.A.1.k.i. The replacement monitor shall be calibrated in accordance with R315-50-16 [40 CFR *Part 266, Appendix IX, 2.1.6.2. for Response Time, and 2.1.6.3 for Calibration Error]* immediately after installation.

V.A.1.k.ii. The replacement monitor shall be calibrated when installed and checked thereafter for Calibration Drift.

V.A.1.k.iii. The replacement monitoring system shall be calibrated and on-line before the calibration of the first monitor has expired. If this cannot be accomplished, feed to the incinerator or furnace shall be discontinued.

V.A.1.k.iv. Both monitors for one location may not be replaced within one 24-hour period without approval from the Executive Secretary.

V.A.1.l. A report specifying the following information shall be submitted to the Executive Secretary within 14 calendar days of replacement of any oxygen (O_2) and carbon monoxide (CO) monitor specified in Condition V.A.1.f.

V.A.1.l.i. The calibration data, both raw data and Process Data Acquisition and Recording System (PDARS), in accordance with R315-50-16 [40 CFR Part 266, Appendix IX];

V.A.1.l.ii. Serial numbers, types, and ranges of both failed and replacement monitors;

V.A.1.l.iii. Date and time the monitor failed;

V.A.1.l.iv. Maintenance to be performed; and

V.A.1.l.v. The identity of the incinerator or furnace.

V.A.1.m. Replacement monitor information in Condition V.A.1.l. shall also be included in the annual report specified in Condition I.AA.

V.A.2. PERFORMANCE STANDARDS

V.A.2.a. The incinerators and furnaces must achieve a Destruction and Removal Efficiency (DRE) listed in the following table for the chemical agent trial burn principal organic hazardous constituents (POHCs), the chemical agents GB, VX, and Mustard (H/HD/HT), and propellant, explosives, and pyrotechnics (PEP). The DRE shall be calculated by the method specified in R315-14-7.

Incinerator / Furnace (POHC)	Minimum POHC DRE
Each TOCDF LIC (GB, VX, Mustard[1])	99.9999%
MPF (GB,VX, Mustard[1])	99.9999%
DFS (GB, VX)[2]	99.99%
DFS (PEP)[3]	99.99%
ATLIC (Monochlorobenzene & Tetrachloroethylene)[4]	99.99% (each)

[1]Distilled Mustard (HD) has highest concentration of POHC in Mustard series HD/H/HT.
[2]A DFS DRE for Mustard not required.
[3]A one time demonstration during any agent campaign.
[4]The DRE for the identified compounds serve as a surrogate measure of the DRE for Agents GA and Lewisite, which are the two agent the ATLIC will process.

V.A.2.b. The particulate matter emission from the TOCDF common stack shall be controlled by limiting the concentration of particulate in the exhaust gas from the Pollution Abatement System of each incinerator to less than 29.8 milligrams per dry standard cubic meter, corrected to 7% oxygen in accordance with the formula given below. ~~shall not exceed 29.8 milligrams per dry standard cubic meter.~~

$$P_c = P_m \times 14/(21 - Y)$$

Where:

P_c = corrected concentration of particulate matter
P_m = measured concentration of particulate matter ppm (dry volume)
Y = *measured O_2 in the stack gas*

V.A.2.b.i. The particulate matter emission from the ATLIC stack shall be controlled by limiting the concentration of particulate in the exhaust gas to less than 3.7 milligrams per dry standard cubic meter, corrected to 7% oxygen in accordance with the formula given above.

V.A.2.c. The hydrogen chloride emission from the TOCDF common stack shall be controlled by limiting the concentration of hydrogen chloride in the exhaust gas from the Pollution Abatement System of each incinerator to less than 32 parts per million by volume, on a dry basis corrected to 7% oxygen.

V.A.2.c.i. The hydrogen chloride emission from the ATLIC stack shall be controlled by limiting the concentration of hydrogen chloride in the exhaust gas to less than 21 parts per million by volume, on a dry basis corrected to 7% oxygen.

V.A.2.d. Toxic metals emissions shall be controlled by limiting the agent and agent contaminated waste feed rates to each incinerator and furnace.

V.A.2.e. The Permittee shall control emissions of products of incomplete combustion from each TOCDF incinerators and furnaces and the ATLIC such that the carbon monoxide (CO) level in each exhaust duct, corrected to 7% oxygen in accordance with the formula given below, shall not exceed 100 parts per million (ppm), dry volume, over a one-hour rolling average.

$$CO_c = CO_m \times (21 - 7)/(21 - O_m)$$

Where:

CO_c = corrected CO ppm (dry volume)
CO_m = measured CO ppm (dry volume)
O_m = measured % O_2 (dry volume)

V.A.2.f. Compliance with the operating conditions specified in Conditions V.B.2., V.C.2., ~~and~~ V.D.2., and V.E.2 shall be regarded as compliance with the required performance standards identified in Conditions V.A.2.a. through V.A.2.e. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in V.B.2., V.C.2., ~~or~~ V.D.2., or V.E.2. is not sufficient to ensure compliance with the performance standards specified in Conditions V.A.2.a. through V.A.2.e., the Permit may be modified, revoked, or reissued, pursuant to R315-3-4.

V.A.3. INSPECTION REQUIREMENTS

V.A.3.a. The Permittee shall inspect each incinerator and furnace in accordance with the inspection requirements of Attachments 5 (Inspection Plan) and 6 (Instrument Calibration Plan and Incinerator Waste Feed Interlock Function Test).

V.A.3.b. The inspection data for the incinerators and furnaces shall be recorded. The records shall be placed in the Operating Record for each incinerator and furnace in accordance with Condition II.I.

MONITORING STATION	MONITORING LEVEL	DAAMS Confirmation
LIC 1 Duct 704AH, BH	0.2 SEL[1]	Yes
LIC 2 Duct Duct 705AH, BH	0.2 SEL[1]	Yes
HVAC Stack 601CH, 601DH	0.5 VSL[2]	Yes
HVAC Stack 601AV, 601BV for VX 601EG, 601FG for GB	0.5 VSL[2]	Historical/confirmation[4]
ATLIC PAS Stack GA monitors L monitors	GA = 0.5 SEL[1] L = 0.4 SEL[1]	Yes[5]
ATLIC HVAC Stack GA monitors L monitors	GA = 0.5 VSL[2] L = 0.4 VSL[2]	Yes[5]

Notes:
[1] SEL(mg/m^3): GB=0.0003, VX=0.0003, HD= 0.03, GA=0.0003, Lewisite = 0.03
[2] VSL(mg/m^3): GB= 0.0001, VX=0.00001, HD=0.003, GA=0.0001, Lewisite = 0.003.
[3] ~~In accordance with Attachment 22, for past agent monitoring requirements.~~ Not used
[4] When processing secondary waste the DAAMS tubes become confirmation tubes. When mustard is the only agent inside the facility boundaries, the tubes are historical.
[5] *GA DAAMS become historical when Lewisite is the only agent being processed by the ATLIC.* L monitoring is performed using paired MINICAMS configured with different analytical columns, one is the primary monitor, the other is the confirmation monitor.

V.A.4.a.ii. A CEMS monitor may be taken off-line for calibration and minor maintenance as specified in Condition V.A.1.h.

V.A.4.a.iii. Data from the CEMS shall be recorded in the operating record and PDARS.

V.A.4.a.iv. Data from the O_2 and CO CEMS and staggered, common stack ACAMS monitors shall be used for reporting requirements.

V.A.4.a.v. All RCRA monitors shall be connected to the waste feed cut-off.

V.A.4.b. Monitoring of oxygen (O_2), carbon monoxide (CO), and agent shall be provided at all times during waste feed to a furnace or incinerator. If an interruption in monitoring (CO, O_2 or agent) occurs, feed to that furnace shall be discontinued except as allowed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables). If the duct is not monitored by an ACAMS/MINICAMS, then the DAAMS tubes shall be analyzed for that time period the ACAMS/MINICAMS was off-line. Monitoring shall resume in accordance with Attachment 22 (Agent Monitoring Plan).

V.A.4.c. Hazardous wastes shall not be fed to an individual incinerator or furnace if any one of the monitoring instruments listed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) pertaining to that incinerator or furnace fails to operate properly.

V.A.4.d. Upon receipt of a written request from the Executive Secretary, the Permittee shall perform sampling and analysis of the waste and exhaust emissions to verify that the

operating requirements established in the Permit achieve the performance standards delineated under Condition V.A.2.

V.A.4.e. All monitoring, recording, maintenance, calibration, and test data shall be recorded and the records shall be placed in the operating record for each furnace in accordance with Condition II.I.

V.A.4.f. The oxygen (O_2) and carbon monoxide (CO) monitors specified in Condition V.A.1.f. shall be certified in accordance with R315-50-16 [40 CFR Part 266, Appendix IX and 40CFR Part 60, Appendix B, using the most stringent requirements.

V.A.4.f.i. Certification or recertification must be accepted by the Executive Secretary.

V.A.4.f.i.a Interim approval of certification or recertification test results may be granted by the Executive Secretary, based upon a review of preliminary data and observations made during the certification testing, to allow operation of the monitor for compliance prior to submission of the final certification or recertification report.

V.A.4.f.ii. A certified monitor may only receive minor modifications and still remain certified.

V.A.4.f.iii. Condition V.A.1.h.i classifies CEMS repairs and maintenance as major changes or minor changes.

V.A.4.f.iv. Written approval from the Executive Secretary shall be required for downgrading a major change to a minor change.

V.A.4.f.v. Each monitor shall be recertified annually, in accordance with R315-50-16 [40 CFR266, Appendix IX] and 40CFR Part 60, Appendix B using the most stringent requirements. This recertification shall be initiated within or before the calendar quarter of the certification anniversary date. The current certification shall remain in effect until a determination is made on the recertification.

V.A.4.f.vi. The certification date shall be the first day of certification testing.

V.A.4.g. Pursuant to Attachment 22 (Agent Monitoring Plan), the Permittee shall monitor and control emissions of chemical agents from each incinerator, furnace, and the TOCDF common stack. The emission level measured by each monitoring system shall not exceed the following concentrations:

	Chemical Agent Concentration (mg/m^3)		
	GB	H/HD/HT	VX
***TOCDF Incinerator and* Common Stack Maximum ~~Stack~~ Emission:**	0.0003	0.03	0.0003
	GA	Lewisite	
ATLIC PAS Stack Maximum Emission:	0.0003	0.03	

V.A.5. CLOSURE

V.A.5.a. *At closure, the Permittee shall follow the procedures in Attachment 10 (Closure Plan).*

V.A.6. RECORDKEEPING

V.A.6.a. The Permittee shall record and maintain, in the operating record for each incinerator and furnace, all monitoring and inspection data compiled under the requirements of this Permit, in accordance with Condition II.I.

V.A.6.b. The Permittee shall record in the operating record the date, time, and duration of all automatic waste feed cut-offs, including the triggering parameters, reason for the deviation that resulted in a waste feed cut-off, and corrective measures taken to prevent recurrence of the incident. The Permittee shall also record all incidents of the automatic waste feed cut-off function failures, including the corrective measures taken to alleviate the condition that caused the failure.

V.B. TOCDF LIQUID INCINERATORS (LICs)

All numeric values included in any of the Conditions under V.B., which are marked with an asterisk (*). (except numeric values for agent GB, which have previously been approved) are tentative and may be modified by permit modification after the results of each trial burn have been evaluated by the Executive Secretary in accordance with R315-8-15.5(c). The Executive Secretary reserves the right to replace the values, which are marked with an asterisk as necessary to be protective of human health and the environment.

V.B.1. LIMITATION ON WASTE FEED

V.B.1.a. Except during the short-term periods specified in Module VI for shakedown, trial burn, and post-trial burn, the Permittee shall incinerate only the following hazardous wastes in each LIC, in compliance with the operating requirements specified in Condition V.B.2.

DESCRIPTION OF HAZARDOUS WASTES	LIC 1 & LIC 2 COMBUSTION CHAMBER	MAXIMUM FEED RATE lbs/hour
Chemical Agents (P999, D002, D003, D004, D006, D007, D008, D009, D010, D011, D028, D034, and D039)		
Mustard (H/HD/HT)	Primary	1,208*
Miscellaneous Agent Contaminated Liquid Wastes (P999, F999, D001, D002, D003, D004, D006, D007, D008, D009, D010, D011, D018, D022, D028, D034, D039, D040, D043, F002, and F005) as identified in Attachment 2 (Waste Analysis Plan). Section 2.2.1.15		
GB	Primary	833
VX	Primary	580*
Mustard (H/HD/HT)	Primary	1,208*
Spent Decontamination Solutions (F999, D001, D002, D003, D004, D006, D007, D008, D009, D010, D011, D018, D019, D022, D028, D034, D039, D040, D043) as		

operated in accordance with the procedures specified in Attachment 8 (Preparedness and Prevention Plan).

V.D.2.w. The Permittee may demonstrate that the agent concentration of a sample of the residue generated from the operation of the DFS Cyclone is below 20 ppb for GB, VX or below 200 ppb for Mustard (H/HD/HT), through analytical testing according to the procedures in Attachment 2 (Waste Analysis Plan). If these analytical results indicate that the agent concentration of the cyclone residue is below these limits, then the residue may be transported off site to an appropriate hazardous waste management facility for treatment, disposal, or both. If such a demonstration is not made, then the DFS cyclone residue *shall be placed into permitted storage.*

V.D.3. WASTE FEED CUT-OFF REQUIREMENTS

V.D.3.a. The Permittee shall construct and maintain the systems specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) to automatically cut off the hazardous waste feed to the DFS when the monitored operating conditions deviate from the set point.

V.D.3.b. In case of a malfunction of the DFS automatic waste feed cut-off systems listed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables), the Permittee shall immediately manually cut off the waste feed to the DFS and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunctions, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunctions, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

V.D.3.c. The Permittee shall perform a waste feed cut-off function test no less than once every 14 days. No waste shall be fed to the DFS during the function test. If the DFS is not operational (i.e., shut down), the Permittee shall perform the function test when the DFS becomes operational, prior to waste feed. Idling shall not be considered as "shut down." A copy of each function test shall be placed in the Operating Record.

V.E. AREA 10 LIQUID INCINERATOR (ATLIC)

All numeric values included in any of the Conditions under V.E., which are marked with an asterisk (*) are tentative and may be modified by permit modification after the results of each trial burn have been evaluated by the Executive Secretary in accordance with R315-8-15.5(c). The Executive Secretary reserves the right to replace the values, which are marked with an asterisk as necessary to be protective of human health and the environment.

V.E.1. LIMITATION ON WASTE FEED

V.E.1.a. Except during the short-term periods specified in Module VI for shakedown, trial burn, and post-trial burn, the Permittee shall incinerate only the following hazardous wastes in the ATLIC, in compliance with the operating requirements specified in Condition V.E.2.

DESCRIPTION OF	ATLIC LIC COMBUSTION	MAXIMUM FEED

HAZARDOUS WASTES	CHAMBER	RATE lbs/hour
Chemical Agents (P999, F999, D002, D003, D004, D007, D008, D009, D019, D021, and D027)		
GA	Primary	325*
L	Primary	325*
Spent Decontamination Solutions (F999, D002, D004, D007, D008, D009, D019, D021, an D027) as identified in Attachment 2 (Waste Analysis Plan)		
Decon Solution	Secondary	452*

V.E.1.a.i. Only one chemical agent, or waste containing one chemical agent, shall be fed to the primary combustion chamber of the ATLIC at any given time.

V.E.1.a.ii. The spent decontamination solution or the miscellaneous agent contaminated wastes may be burned either in the primary combustion chamber or secondary combustion chamber but not at the same time. If these wastes are burned in the secondary combustion chamber, then only agent may be fed to the primary combustion chamber at the same time.

V.E.1.b. The Permittee shall not incinerate any chemical agent, or any waste containing the chemical agent, for which treatment has not been successfully demonstrated through an agent or surrogate trial burn in accordance with Module VI or by other means approved by the Executive Secretary.

V.E.1.c. The Permittee shall not incinerate any hazardous waste in the ATLIC that contains R315-50-10 organic hazardous constituents, which are more difficult to destroy than the material demonstrated in the surrogate trial burn.

V.E.1.d. The feed rate of chlorine to the ATLIC shall not exceed TBD* pounds, over a twelve-hour rolling average.

V.E.1.e. Simulant test materials may be fed to either the primary or secondary combustion chambers to verify operating performance at the start of an agent or munition campaign, *following maintenance, or after an approved furnace system modification.*

V.E.1.f. Only liquid, pumpable, waste with a maximum viscosity of 2.26 centipoise at 20° C shall be incinerated in the ATLIC.

V.E.1.g. The Permittee shall conduct sufficient analysis of all waste treated in the ATLIC to verify that the waste feed is within the physical and chemical composition limits specified, in accordance with the waste analysis requirements in Attachment 2 (Waste Analysis Plan) and Attachment 3 (Sampling, Analytical, and QA/QC Procedures).

V.E.1.h. Metals feed rates to each ATLIC shall not exceed the values specified in Table V.4 located at the end of this Module.

V.E.2. ATLIC OPERATING CONDITIONS

V.E.2.a. All operating conditions shall be monitored in accordance with the Monitoring Requirements in V.A.4. The Permittee shall monitor emissions of chemical agent from ATLIC exhaust stack, as specified in Condition V.A.4. The waste feed(s) to the ATLIC shall be automatically cut off if any of the monitored operating conditions deviate from the values specified in Tables D-8-2 in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

V.E.2.b. The maximum waste feed rate to the ATLIC primary combustion chamber shall not exceed TBD * pounds over a one-hour rolling average.

V.E.2.c. The maximum waste feed rate to the ATLIC secondary combustion chamber shall not exceed TBD * pounds over a one-hour rolling average.

V.E.2.d. Primary combustion chamber exhaust gas temperature shall be maintained at or above TBD *° F, over a one-hour rolling average.

V.E.2.e. Secondary combustion chamber exhaust gas temperature shall be maintained at or above TBD *° F, over a one-hour rolling average.

V.E.2.g. Atomizing air pressure for the waste burner nozzles, for both chemical agent and decontamination solution shall be maintained at or above the following set points:

V.E.2.g.i. Primary Combustion Chamber, All Feed Rates (1-100%) - TBD * psig.

V.E.2.g.ii. Secondary Combustion Chamber, All Feed Rates (1-100%) - TBD * psig.

V.E.2.h. The Permittee shall control fugitive emissions from the combustion zone of the ATLIC by the sealed system design of the ATLIC combustion chambers.

V.E.2.i. ATLIC exhaust gas flow rate or unit production rate (as measured by instrument 919-FIT-8932 corrected by ambient pressure and temperature) shall not exceed TBD * standard cubic feet per minute, over a one-hour rolling average.

V.E.2.j. Scrubber liquid feed rate to each of the three scrubber towers shall be maintained above TBD * gallons per minute, over a one-hour rolling average and delivery pressure shall be maintained above TBD * psig.

V.E.2.k. The pressure drop across each pack bed scrubber tower shall be maintained above TBD inches of water column over a one-hour rolling average

V.E.2.l. The average of the scrubber liquid pH as measured by the three pH probes in the common scrubber sump shall be maintained above a pH of TBD *over a one-hour rolling average.

V.E.2.m. Scrubber liquid effluent shall not reach or exceed TBD* specific gravity units, over a twelve hour rolling average.

V.E.2.n. The Venturi Scrubber liquid pH shall be maintained above a pH of TBD *over a one-hour rolling average.

V.E.2.o. Venturi Scrubber Sump liquid effluent shall not reach or exceed TBD* specific gravity units, over a twelve hour rolling average.

V.E.2.p. Exhaust gas pressure drop across the venturi scrubber shall be maintained above TBD * inches of water column over a one-hour rolling average.

V.E.2.q. Scrubber solution feed rate to the venturi scrubber shall be maintained above TBD * gallons per minute over a one-hour rolling average and delivery pressure shall be maintained above TBD * psig.

V.E.2.r. The powdered activated carbon injection rate shall be maintained above TBD pounds per hour over an hour rolling average.

V.E.2.s. The powdered activated carbon carrier fluid (compressed air) differential pressure shall be maintained above TBD inches of water column over a one-hour rolling average.

V.E.2.t. The temperature of exhaust gas entering the baghouse shall not exceed TBD °F over a one-hour rolling average.

V.E.2.u. Oxygen concentration in the exhaust blower exit gas, shall be maintained above 3%* oxygen on a dry volume basis.

V.E.2.v. Carbon monoxide in the exhaust blower exit gas, shall be corrected to 7 % oxygen in accordance with the formula specified in Condition V.A.2.e., and shall be maintained below 100* ppm, dry volume, over a one-hour rolling average.

V.E.2.w. The differential pressure across the on-line fixed bed carbon filter shall be maintained above TBD inches of water column over a one-hour rolling average.

V.E.3. WASTE FEED CUT-OFF REQUIREMENTS

V.E.3.a. The Permittee shall maintain and operate the systems specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) to automatically cut off the hazardous waste feed to the ATLIC when the monitored operating conditions deviate from the set-points specified.

V.E.3.b. In the event of a malfunction of the ATLIC automatic waste feed cut-off systems listed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) the Permittee shall immediately, manually, cut off the waste feed to the ATLIC and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunctions, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunctions, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

V.E.3.c. The Permittee shall perform a waste feed cut-off function test no less than once every 30 days. No waste shall be fed to the ATLIC during the function test. If the ATLIC is not operational (i.e., shut down), the Permittee shall perform the function test when the ATLIC becomes operational, prior to waste feed. Idling shall not be considered as "shut down." A copy of each function test shall be placed in the Operating Record.

V.~~E~~F. COMMON STACK FOR LICs, MPF, & DFS

V.~~E~~F.1. The Permittee shall maintain ACAMS and DAAMS continuous exhaust gas monitoring systems for chemical agent emissions on the common stack.

V.~~E~~F.2. The exhaust gas monitoring systems specified in Condition V.~~E~~F.1., shall be calibrated, inspected and operated in accordance with the applicable elements of Conditions V.A.3., V.A.4., and Attachments 3 (Sampling, Analytical, and QA/QC Procedures); 6 (Instrument Calibration Plan and Incinerator Waste Feed Interlock Function Test): 20 (Continuous Emission Monitoring Plan); and 22 (Agent Monitoring Plan).

V.~~E~~F.3. Reserved

V.~~E~~F.4. Emissions from the common stack shall be monitored for chemical agent as specified in Condition V.~~E~~F.2. The agent concentration shall not exceed the values specified in Condition V.A.4.g.

V.~~E~~F.5. The waste feeds to all incinerators and furnaces shall be automatically cut off when the emission level in the common stack exceeds 0.2 SEL for any chemical agent.

V.~~E~~F.6. ACAMS on the common stack shall be comprised of two primary monitors in staggered mode of sampling for continuous monitoring for each agent. A back-up monitor shall be stationed in the stack for contingency purposes, i.e., primary monitor malfunctions or calibration.

V.~~E~~F.7. Waste feed to all incinerators and furnaces shall be cut off when the ACAMS are not staggered.

V.~~E~~F.8. DAAMS Tubes on the common stack shall be analyzed at a frequency of one tube per four hours of sampling with a corresponding QP sample. A method of DAAMS tube tracking is discussed in Section 22.17.2.1 of Attachment 22 (Agent Monitoring Plan).

V.~~E~~F.9. Data from all ACAMS shall be reported on PDARS.

V.~~E~~F.10. Data from all DAAMS analyses shall be reported in the Operating Record.

V.~~E~~F.11. Confirmed agent alarms shall be orally reported to the Executive Secretary within 24 hours of confirmation.

Table V.1
TOCDF LIC Metals Feed Limits

Table V.3 DFS Non-embedded Metals Feed Limits	
Metals	**24-hour Total[1,2] (pounds)***
Barium (D005)	61
Selenium (D010)	0.00019
Silver (D011)	0.000062
Metal Volatility Group	12-Hour Rolling Average[3] (Total pounds per 12 hours)
High Volatile Metals (Mercury D009)	0.0094
Semi-Volatile Metals (Lead (D008) and Cadmium (D006))	72
Low-Volatile Metals (Arsenic (D004), Beryllium, Chromium (D007))	5.1

Notes:

1. Non-embedded metals are metals that may vaporize or become entrained in the combustion gas air during thermal treatment.
2. 24-hour Total is measured from 0000 hours to 2400 hours each calendar day.
3. Based on the DFS VX ATB.

Table V.4 ATLIC Metals Feed Limits	
Metal Volatility Group	12-Hour Rolling Average[1,2] (Total pounds per 12 hours)
High Volatile Metals (Mercury D009)	0.70
Semi-Volatile Metals (Lead (D008) and Cadmium (D006))	0.001
Low-Volatile Metals (Arsenic (D004), Beryllium, Chromium (D007))	1156

Notes:

[1]Based on the ATLIC LIC L ATB Plan.

2 Other metal feed rate regulated through ash feed rate limit.

MODULE VI SHORT-TERM INCINERATION

VI.A. GENERAL CONDITIONS FOR INCINERATORS AND FURNACES

VI.A.1. TRIAL BURN PLANS

VI.A.1.a. Trial Burn Plan Submittal

VI.A.1.a.i. The Permittee shall submit a trial burn plan for each agent and for each incinerator that will process that agent. The Permittee shall perform a trial burn for each agent to be *processed, for each furnace that will process that agent. The Permittee shall submit each* trial burn plan a minimum of 180 days prior to the start of the Shakedown Period for the planned trial burn.

VI.A.1.a.ii. Each individual trial burn plan for each furnace and each remaining agent shall be submitted by the Permittee in accordance with R315-3-4.

VI.A.1.a.iii. These trial burn plans shall define operating conditions and waste feed rates that will be used to determine incinerator performance in accordance with R315-8-15.4.

VI.A.1.a.iv. The trial burn plan shall include ramp-up procedures to be implemented during shakedown for the furnace.

VI.A.1.a.v. The trial burn plan shall include sampling and analytical methods in order to include decontamination solution in the trial burn runs. Proposed feed rates shall be evaluated by the Executive Secretary prior to use during Short-Term Incineration.

VI.A.1.a.vi. The Executive Secretary shall review and approve all munition lot numbers to be processed during Short-Term Incineration. This requirement is waived for GA, Lewisite and "Transparency" Ton Containers because of their small number.

VI.A.1.a.vii. During the mustard campaign, the DFS is exempt from the requirements of Conditions VI.A.1.a.i. through VI.A.1.a.v., VI.A.3, and VI.D.

VI.A.2. SHAKEDOWN

VI.A.2.a. Shakedown Periods

~~VI.A.2.a.i. The Permittee may not start the Shakedown Period in the specific furnace system until the Executive Secretary approves the specific agent trial burn plan and monitoring documentation is provided to the Executive Secretary that demonstrates the initial baseline has passed the criteria listed in the LQCP (CDRL 24, Table 12-2). setpoints in for NRT monitors in category C areas, will not exceed 0.5 STEL/VSL. For mustard agent, the common stack and ducts alarm setpoints will not exceed 0.2 SEL~~

VI.A.2.a.i. The Permittee may not start the agent processing in the specific furnace system until the Executive Secretary approves the specific trial burn plan and monitoring documentation is provided to the Executive Secretary that demonstrates the initial baseline has passed the criteria listed in the LQCP (CDRL 24, Table 12-2).

VI.A.2.a.i.a. TOCDF alarm setpoints for NRT monitors in category C areas will not exceed 0.5 STEL/VSL. For mustard agent, the common stack and ducts alarm setpoints will not exceed 0.2 SEL.

VI.A.2.a.i.b. The alarm setpoints for NRT monitors in category C areas will not exceed 0.5 and 0.4 STEL/VSL for Agent GA and Lewisite, respectively. The ATLIC Liquid Incinerator (LIC) exhaust stack alarm setpoints shall not exceed 0.5 SEL for GA and 0.4 SEL for Lewisite.

VI.A.2.a.ii. The Shakedown Period shall begin with the introduction of each surrogate or agent into the furnace and shall end with the start of each furnace chemical agent or surrogate trial burn. There shall be a separate Shakedown Period for each furnace and agent.

VI.A.2.a.iii Only non-agent contaminated waste or materials shall be processed during Shakedown hours attributed to the Secondary Waste Demonstration Test and during the test runs associated with the demonstration test (i.e.. DPE suits/material and carbon canisters).

VI.A.2.a.iv Secondary Waste identified in Table 2-5 of Attachment 2 (Waste Analysis Plan), may be processed during the Shakedown periods for agent that have been successfully demonstrated per Condition VI.C.3.a.i.c.1 at the specified feed rates without further function testing.

VI.A.2.a.v The Permittee shall maintain records that differentiate and document between Shakedown hours attributed to the processing of waste to be demonstrated during the trial burn/ demonstration test and hours attributed to the processing of Secondary Waste per Condition VI.C.3.a.i.c.1.

VI.A.2.a.vi A Monitoring plan for the discharge airlock will be submitted and approved by the Executive Secretary prior to commencing shakedown operations.

VI.A.2.b. Duration of the Shakedown Periods

VI.A.2.b.i. Each Shakedown Period associated with the TOCDF incinerators shall not exceed 720 hours of agent operation. The Permittee may petition the Executive Secretary for one extension of the Shakedown Period for up to 720 additional hours for each agent test in accordance with R315-8-15.5(c)(1).

VI.A.2.b.ii. The Shakedown Period associated with ATLIC Surrogate Trial Burn shall not exceed 720 hours of agent operations.

VI.A.2.b.iii. The Shakedown Period associated with ATLIC Lewisite Agent Trial Burn shall not exceed 144 hours of agent operations and the amount of agent processed during the Shakedown period shall be limited to the lesser of either 7,500 pounds or the contents of three Lewisite Ton Containers.

VI.A.3. TRIAL BURN

VI.A.3.a. Trial Burn Determinations

VI.A.3.a.i. The Permittee shall determine during the trial burn tests whether or not the following performance standards have been met:

TOCDF Performance Standards	**Agent Trial Burn**		
Minimum DREs for Applicable POHCs	99.9999% (LIC, Agent) 99.9999% (MPF, Agent) 99.99% (DFS, Agent) 99.99% (DFS, PEP)		
Particulate Matter Emission Limit	0.013 grains/dscf (29.75 mg/dscm), at 7% O_2		
Mercury (Hg)	130 µg/dscm at 7% O_2		
Semi-volatile Metals (Pb, Cd)	230 µg/dscm at 7% O_2		
Low-volatility Metals (As, Be, Cr)	92 µg/dscm at 7% O_2		
Hydrogen Chloride / Chlorine (HCl/Cl_2) Emission Limit	32 ppmv total HCl and Cl_2 expressed as HCl equivalents at 7% O_2		
Toxic Metals Emission Limits	At levels determined by the Executive Secretary to be protective of human health and environment.		
Dioxins/Furans TEQ	0.4 ng/dscm at 7% O_2		
CO Emission Limit, 60-Minute Rolling Average	100 ppmv at 7% O_2		
Chemical Agents Emission Limits	GB	H/HD/HT	VX
	0.0003 mg/m^3	0.03 mg/m^3	0.0003 mg/m^3

ATLIC Performance Standards	**ATLIC Trial Burns**		
Minimum DREs for Applicable POHCs	99.99% each (Surrogates; Monochlorobenzene and Tetrachloroethylene)		
Particulate Matter Emission Limit	0.0016 grains/dscf (3.7 mg/dscm), at 7% O_2		
Mercury (Hg) Emission Limit	8.1 µg/dscm at 7% O_2		
Semi-volatile Metals (Pb, Cd) Emission Limit	10 µg/dscm at 7% O_2		
Low-volatility Metals (As, Be, Cr) Emission Limit	23 µg/dscm at 7% O_2		
Hydrogen Chloride / Chlorine (HCl/Cl_2) Emission Limit	21 ppmv total HCl and Cl_2 expressed as HCl equivalents at 7% O_2		
Toxic Metals Emission Limits	At levels determined by the Executive Secretary to be protective of human health and environment.		
Dioxins/Furans TEQ Emission Limit	0.2 ng/dscm at 7% O_2		
CO Emission Limit, 60-Minute Rolling Average	100 ppmv at 7% O_2		
Chemical Agents Emission Limits	GA	Lewisite	
	0.003 mg/m^3*	0.03 mg/m^3*	

*Continuously demonstrated by exhaust stack agent monitoring.

VI.A.3.a.ii. Emissions from each trial burn shall be measured to quantify total organics.

VI.A.3.a.iii. The Permittee may use Cr^{+6} test data collected during the agent trial burn to quantify the amount of the total chromium that is subject to the Toxic Metals Emission Limits in the table above.

VI.A.3.b. Trial Burn Data Submissions and Certifications

VI.A.3.b.i. The Permittee shall submit a summary of all stack sampling data collected during the trial burn to the Executive Secretary upon completion of each trial burn run. The Permittee shall submit to the Executive Secretary a trial burn test report within 90 calendar days of completion of each trial burn. All submissions shall be certified in accordance with R315-3-2.2.

VI.A.3.b.ii. If the preliminary calculations show that the Permittee has failed to meet one or more of the performance standards listed in Condition VI.A.3.a. during the trial burn, the Permittee shall immediately stop waste feed to the incinerator system tested. The Executive Secretary shall be orally notified within 24 hours of this discovery. A written notification and explanation shall be submitted within 15 days of the oral notification. As necessary for protection of workers, the Permittee may propose a revised post-trial burn feed rate for approval to dispose of open munitions/bulk containers and the hazardous waste remaining in the tank systems.

VI.A.4. MONITORING, INSPECTION, AND RECORDKEEPING REQUIREMENTS

VI.A.4.a. Monitoring Requirements

VI.A.4.a.i. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Attachments 3 (Sampling, Analytical, and QA/QC Procedures), 6 (Instrument Calibration Plan and Incinerator Waste Feed Interlock Function Test), 19 (Instrumentation and Waste Feed Cut-off Tables), 20 (Continuous Emission Monitoring System Plans), and 22 (Agent Monitoring Plan).

VI.A.4.a.ii. Monitoring of oxygen (O_2), carbon monoxide (CO), and agent shall be provided at all times during waste feed to a furnace or incinerator. If an interruption in monitoring (CO, O_2 or agent) occurs, feed to that furnace shall be discontinued except as allowed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables). If the duct is not monitored by an ACAMS, then the DAAMS tubes shall be analyzed for that time period the ACAMS was off-line. Monitoring shall resume in accordance with Attachment 22 (Agent Monitoring Plan).

VI.A.4.a.iii. The Permittee shall provide continuous monitoring in the TOCDF common stack for agents being processed. The continuous monitoring shall consist of two staggered ACAMS monitors for each agent and DAAMS tubes for each agent being processed per Condition VI.A.4.a.xvii. If an interruption in monitoring occurs, feed to all of the furnace systems shall be discontinued.

VI.A.4.a.iii.a The Permittee shall provide continuous monitoring in the ATLIC stack for agents being processed per Condition VI.A.4.a.xvii.a and VI.A.4.a.xvii.b. If an interruption in monitoring occurs, feed to ATLIC shall be discontinued.

VI.A.4.a.iii.a.1 When processing agent GA the monitoring shall consist of two staggered ACAMS and DAAMS tubes.

VI.A.4.a.iii.a.2 When processing Lewisite the monitoring shall consist of either of two staggered MINICAMS and DAAMS tubes or two sets of staggered MINICAAMS. For MINIMCAMS only application, each set shall consist of two MINICAMS with dissimilar analytical columns. For each set, one MINICAMS set shall be the primary monitors, the other shall be the confirmation monitors. The sets of MINICAMS shall be managed such that the monitoring cycle of one set is staggered relative to the other.

VI.A.4.a.iii.a.3 If one of the redundant agent monitors fails or malfunctions, the Permittee shall replace or repair the monitor within 24 hours. If both monitors fail or malfunction, then feed to the incinerator or furnace shall be stopped.

VI.A.4.a.iv. The Permittee shall maintain and operate Depot Area Air Monitoring System (DAAMS) tubes and an Automatic Continuous Air Monitoring System (ACAMS) monitor on each TOCDF furnace exhaust duct and DAAMS tubes and staggered ACAMS monitors on the common stack for each agent being processed. If one of the redundant monitors fails or malfunctions, the Permittee shall replace or repair the monitor within 24 hours. If both monitors fail or malfunction, then feed to the incinerator or furnace shall be stopped.

VI.A.4.a.v. The oxygen (O_2) and carbon monoxide (CO) monitors specified in Condition VI.A.4.a.ii. shall be initially certified in accordance with R315-50-16 [40 CFR Part 266. Appendix IX], and 40CFR Part 60. Appendix B. using the most stringent requirements.

VI.A.4.a.v.a. Certification must be accepted by the Executive Secretary.

VI.A.4.a.v.a.i Interim approval of certification or recertification test results may be granted by the Executive Secretary, based upon a review of preliminary data and observations made during the certification testing, to allow operation of the monitor for compliance prior to submission of the final certification report.

VI.A.4.a.v.b. Certification shall expire at the end of the calendar quarter associated with the certification anniversary.

VI.A.4.a.v.c. The certification date shall be the first day of certification testing.

VI.A.4.a.v.d. Any monitor failing certification shall not be used for compliance.

VI.A.4.a.vi. A certified monitor may only receive minor modifications and still remain certified. A list of minor and major changes and the corrective action is listed V.A.1.h.i.

VI.A.4.a.vi.a. Written approval from the Executive Secretary shall be required for downgrading from major to minor.

VI.A.4.a.vii. Major maintenance changes require recalibration of the CEMS in accordance with R315-50-16 [40 CFR Part 266. Appendix IX, Performance Specification Tests], 40CFR Part 60, Appendix B, Condition V.A.1.h. and Attachment 20 (CEMS Monitoring Plan), using the most stringent requirements

VI.A.4.a.viii. Replacement monitors shall be available for the monitors specified in Conditions VI.A.4.a.ii. through VI.A.4.a.iv. The oxygen (O_2) and carbon monoxide (CO) monitors specified in Condition VI.A.4.a.ii. shall be certified in accordance with Conditions VI.A.4.a.v. through vii. Replacement ACAMS and MINICAMS shall be certified in accordance with Attachment 3 (Sampling, Analytical, and QA/QC Procedures).

VI.A.4.a.ix. Replacement of the oxygen (O_2) and carbon monoxide (CO) CEMS specified in Condition VI.A.4.a.ii. shall be in accordance with the following:

VI.A.4.a.ix.a. The replacement CEMS shall be calibrated in accordance with R315-50-16 [40 CFR Part 266, Appendix IX, 2.1.6.2. for Response Time, and 2.1.6.3 for Calibration Error] immediately after installation.

VI.A.4.a.ix.b. The replacement CEMS shall be calibrated when installed and checked daily thereafter for Calibration Drift.

VI.A.4.a.ix.c. The replacement CEMS must be calibrated and on line before the calibration of the first monitor has expired. If this cannot be accomplished, feed to the specific furnace system shall be discontinued.

VI.A.4.a.ix.d. Both monitors for one TOCDF incinerator monitoring location may not be replaced within one 24-hour period without approval from the Executive Secretary.

VI.A.4.a.ix.e. Replacement CEMS information shall also be included in the annual report specified in Condition I.AA.

VI.A.4.a.x. A report specifying the following information shall be submitted to the Executive Secretary within 14 calendar days of replacement of any monitor specified in Condition VI.A.4.a.ix.e and ATLIC CEMS:

VI.A.4.a.x.a. The calibration data, raw and Process Data Acquisition and Recording System (PDARS), in accordance R315-50-16 [40 CFR Part 266, Appendix IX]:

VI.A.4.a.x.b. Failed and replacement monitor serial numbers, type and range of the monitors;

VI.A.4.a.x.c. Date and time monitor failed;

VI.A.4.a.x.d. Maintenance to be performed; and

VI.A.4.a.x.e. The identity of the furnace.

VI.A.4.a.xi. A CEMS may be taken off line for calibration and minor maintenance as specified in Condition V.A.1.h. However, when taken off line for major maintenance or modifications, recertification of the monitor will be required as specified in Condition V.A.1.h.

VI.A.4.a.xii. Data from the CEMS shall be recorded in the operating record.

VI.A.4.a.xiii. Data from all monitors on-line will be reported in the operating record. Worst-case data will be used for reporting requirements.

VI.A.4.a.xiv. All monitors shall be connected to the waste feed cut-off.

VI.A.4.a.xv. Hazardous wastes shall not be fed to a furnace if any waste feed cut-off instrument associated with that furnace listed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) fails to operate properly.

VI.A.4.a.xvi. All monitoring, recording, maintenance, calibration and test data shall be recorded and the records shall be placed in the Operating Record for the specific furnace.

VI.A.4.a.xvii. ACAMS on the TOCDF common stack shall be comprised of two primary monitors in staggered mode of sampling for continuous monitoring for agent. A back-up monitor shall be calibrated and stationed in the stack-monitoring house for contingency purposes, i.e., primary monitor malfunctions or calibration.

VI.A.4.a.xvii.a. ACAMS used to monitor for Agent GA on the ATLIC stack shall be comprised of two primary monitors in staggered mode of sampling for continuous monitoring for agent. A back-up monitor shall be calibrated and stationed such that it is available for contingency purposes, i.e., primary monitor malfunctions or calibration.

VI.A.4.a.xvii.b. MINICAMS used to monitor for Lewisite Agent on the ATLIC PAS stack shall be comprised of either two sets of monitors, each set operating in staggered mode relative to the other set for continuous monitoring for agent. A back-up monitor set shall be calibrated and stationed such that it is available for contingency purposes, i.e., primary monitor set malfunctions or calibration. Alternatively the MINICAMS sets can be reduced to a single MINICAMS (three monitors total, two staggered and one backup) provided DAAMS are installed and available to confirm MINICAMS alarms.

VI.A.4.a.xviii. DAAMS tubes on the TOCDF common stack and ATLIC PAS stack (if used) shall be analyzed at a frequency of one tube per four hours of sampling with a corresponding QP sample for each agent.

VI.A.4.a.xix. Data from all TOCDF ACAMS (specified in Attachment 22, Agent Monitoring Plan) shall be reported on PDARS.

VI.A.4.a.xix.1 Data from all ATLC ACAMS (specified in Attachment 22a, Agent Monitoring Plan) shall be recorded by the ATLIC process data acquisition and recording system.

VI.A.4.a.xx. Data from all DAAMS analyses shall be reported in the Operating Record.

VI.A.4.a.xxi. Confirmed agent alarms shall be orally reported to the Executive Secretary within 24 hours of confirmation.

VI.A.4.b. Inspection Requirements

VI.A.4.b.i. The Permittee shall comply with the inspection requirements specified in Condition V.A.3.

VI.A.4.c. Recordkeeping Requirements

VI.A.4.c.i. The Permittee shall comply with the recordkeeping requirements as specified in Condition V.A.6.

VI.B. TOCDF LIQUID INCINERATORS (LICs)

VI.B.1. SHAKEDOWN

VI.B.1.a. Allowable Waste Feed

VI.B.1.a.i. During the shakedown periods, the Permittee shall limit the hourly feed of hazardous and non-hazardous wastes, decontamination solutions and Munition Demilitarization Building aqueous liquid wastes to the LIC to that specified in the LIC Agent Trial Burn Plan specific to the agent being processed.

VI.B.1.a.ii. The Permittee shall not feed the following wastes to the LIC during the Shakedown Periods.

VI.B.1.a.ii.a. Hazardous Wastes F020 through F023, F026, and F027.

VI.B.1.a.ii.b. Any wastes containing polychlorinated biphenyls.

VI.B.1.a.iii. The feed rate of chlorine to each LIC shall not exceed 7356 pounds, over a twelve-hour rolling average during the shakedown period. The Permittee shall specify expected feed rates in each trial burn plan for the shakedown and trial burn periods.

VI.B.1.a.iv. Decontamination solution with the F999 waste code, and other applicable waste codes, may be fed to the secondary chamber of the LIC during the shakedown period only if the operating conditions specified in Condition VI.B.1.b. are satisfied and the waste feed cut-off limits specified in the trial burn plans are in effect.

VI.B.1.a.v. Changes to the LICs shall be certified as specified in Condition I.S.

VI.B.1.a.vi. Throughout the shakedown periods, the Permittee shall conduct waste analysis in accordance with the approved trial burn plan and Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures) for agent and other hazardous waste.

VI.B.1.a.vii. The Permittee shall determine waste codes for each waste stream as specified in Attachment 2 (Waste Analysis Plan).

VI.B.1.b. *Operating Conditions*

VI.B.1.b.i. During the shakedown periods, the Permittee shall operate the LIC furnace system in accordance with the approved trial burn plans and the following conditions:

VI.B.1.b.i.a. The Permittee shall monitor emissions from the LIC duct and the common stack for chemical agent as specified in Condition VI.A.4.a. The waste feed to the incinerator shall be automatically cut-off if any of the monitored emission levels exceed the values specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.E. AREA 10 LIQUID INCINERATOR (ATLIC)

VI.E.1. SHAKEDOWN

VI.E.1.a. Allowable Waste Feed

VI.E.1.a.i. During the shakedown periods, the Permittee shall limit the hourly feed of hazardous and non-hazardous wastes, decontamination solutions and aqueous liquid wastes to the ATLIC to that specified in the ATLIC Trial Burn Plan specific to the agent being processed.

VI.E.1.a.ii. The Permittee shall not feed the following wastes to the ATLIC during the Shakedown Periods.

VI.E.1.a.ii.a. Hazardous Wastes F020 through F023, F026, and F027.

VI.E.1.a.ii.b. Any wastes containing polychlorinated biphenyls.

VI.E.1.a.iii. The feed rate of chlorine to the ATLIC shall not exceed 2,298 pounds, over a twelve-hour rolling average during the shakedown period. The Permittee shall specify expected feed rates in each trial burn plan for the shakedown and trial burn periods.

VI.E.1.a.iv. Decontamination solution with the F999 waste code, and other applicable waste codes, may be fed to the secondary chamber of the ATLIC during the shakedown period only if the operating conditions specified in Condition VI.E.1.b. are satisfied and the Automatic Waste Feed Cut-Off (AWFCO) set-points specified in the trial burn plans are in effect with the exception of those AWFCO set-points specified in Condition VI.E.1.a.ix.

VI.E.1.a.v. Changes to the ATLIC shall be certified as specified in Condition I.S.

VI.E.1.a.vi. Throughout the shakedown periods, the Permittee shall conduct waste analysis in accordance with the approved trial burn plan and Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures) for agent and other hazardous waste.

VI.E.1.a.vii. The Permittee shall determine waste codes for each waste stream as specified in Attachment 2 (Waste Analysis Plan).

VI.E.1.a.viii. The Permittee shall not begin the Shakedown Period associated with the Lewisite Comprehensive Performance Test (LCPT) unless the Executive Secretary has approved the preliminary data for the ATLIC Surrogate Trial Burn.

VI.E.1.a.ix. Prior to beginning the Shakedown Period associated with the LCPT the Permitee shall develop the AWFCO set-points for Minimum Primary Combustion Chamber (PCC) Temperature, Minimum Secondary Combustion Chamber (SCC) Exhaust Gas Temperature, Maximum PCC Waste Feed Rate, Maximum SCC Waste Feed Rate, and Maximum Exhaust Gas Flow Rate from process data generated during the ATLIC STB per the methodology specified in 40 CFR 63.1209.

VI.E.1.a.ix.a If the Permittee provides to the Executive Secretary a revised Attachment 19, Table D-8-

2 that incorporates the AWFCO set-points referenced in Condition VI.E.1.a.ix prior to the initiation of the Lewisite Comprehensive Performance Test (CPT) Shakedown Period and operates the ATLIC throughout the Shakedown, Test, and Post-Test periods with these same AWFCO set-points in effect then the Permittee is not required to demonstrate a Destruction and Removal Efficiency (DRE) for Lewisite during the LCPT.

VI.E.1.a.ix.b If the Permittee does not provide the Executive Secretary a revised Table D-8 incorporating the AWFCO set-points referenced in Condition VI.E.1.a.ix. prior to the initiation of the LCPT Shakedown Period and instead operates the ATLIC throughout the Shakedown, Test, and Post-Test periods with one or more of the AWFCO set-points specified in Permit Conditions VI.E.1.b.i.b through VI.E.1.b.i.e, and VI.E.1.b.i.j, then the Permittee shall demonstrate a DRE for Lewisite during the LCPT.

VI.E.1.b. *Operating Conditions*

VI.E.1.b.i. During the shakedown periods, the Permittee shall operate the ATLIC furnace system in accordance with the approved trial burn plans and the following conditions:

VI.E.1.b.i.a. The Permittee shall monitor emissions from the ATLIC PAS stack for chemical agent as specified in Condition VI.A.4.a. The waste feed to the incinerator shall be automatically cut-off if any of the monitored emission levels exceed the values specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.E.1.b.i.b. The maximum waste feed rate to the ATLIC primary combustion chamber shall not exceed 325* pounds over a one-hour rolling average.

VI.E.1.b.i.c. The maximum waste feed rate to the ATLIC secondary combustion chamber shall not reach or exceed 452* pounds over a one-hour rolling average.

VI.E.1.b.i.d. Primary combustion chamber exhaust gas temperature shall be maintained at or above 2,550*° F, over a one-hour rolling average.

VI.E.1.b.i.e. Secondary combustion chamber exhaust gas temperature shall be maintained at or above 1,850*° F, over a one-hour rolling average.

VI.E.1.b.i.f. Atomizing air pressure for the waste burner nozzles, for both chemical agent and decontamination solution shall be maintained at or above the following set points:

VI.E.1.b.i.g. Primary Combustion Chamber, All Feed Rates (1-100%) - 35* psig.

VI.E.1.b.i.h. Secondary Combustion Chamber, All Feed Rates (1-100%) - 35* psig.

VI.E.1.b.i.i. The Permittee shall control fugitive emissions from the combustion zone of the ATLIC by the sealed system design of the combustion chambers.

VI.E.1.b.i.j. ATLIC exhaust gas flow rate or unit production rate (as measured by instrument 819-FIT-8932 and corrected to standard conditions) shall not exceed 2,500* standard cubic feet per minute, over a one-hour rolling average.

VI.E.1.b.i.k. Scrubber liquid feed rate to each scrubber tower shall be maintained above 40* gallons per minute, over a one-hour rolling average and delivery pressure shall be maintained above 25* psig.

VI.E.1.b.i.l. The pressure drop across each pack bed scrubber tower shall not maintained above 0.3 * inches of water column over a one-hour rolling average

VI.E.1.b.i.m. The average of the scrubber liquid pH as measured by the three pH probes in the common scrubber sump shall be maintained above a pH of 7.0 *over a one-hour rolling average.

VI.E.1.b.i.n. Common Scrubber Sump liquid effluent shall not reach or exceed 1.28* specific gravity units, over a twelve hour rolling average.

VI.E.1.b.i.o. The Venturi Scrubber liquid pH shall be maintained above a pH of 7.0 *over a one-hour rolling average.

VI.E.1.b.i.p. Venturi Scrubber Sump liquid effluent shall not reach or exceed 1.28* specific gravity units, over a twelve hour rolling average.

VI.E.1.b.i.q. Exhaust gas pressure drop across the venturi scrubber shall be maintained above 12 * inches of water column over a one-hour rolling average.

VI.E.1.b.i.r. Scrubber solution feed rate to the venturi scrubber shall be maintained above 8* gallons per minute over a one-hour rolling average and delivery pressure shall be maintained above 25* psig.

VI.E.1.b.i.s The powdered activated carbon injection rate to shall be maintained above 0.5 * pounds per hour over an hour rolling average.

VI.E.1.b.i.t. The powdered activated carbon carrier fluid (compressed air) differential pressure shall be maintained above TBD * inches of water column over a one-hour rolling average.

VI.E.1.b.i.u. The temperature of exhaust gas entering the baghouse shall not exceed 240*°F over a one-hour rolling average.

VI.E.1.b.i.v. The differential pressure across the baghouse filter elements shall be maintained above 0.1 inches of water column over a one-hour rolling average.

VI.E.1.b.i.w. Oxygen concentration in the exhaust blower exit gas, shall be maintained above 3 %* but shall not exceed 15% oxygen on a dry volume basis.

VI.E.1.b.i.x. Carbon monoxide in the exhaust blower exit gas, shall be corrected to 7 % oxygen in accordance with the formula specified in Condition V.A.2.e., and shall be maintained below 100* ppm, dry volume, over a one-hour rolling average.

VI.E.1.b.i.y. The differential pressure across the on-line fixed bed carbon filter shall be maintained above 0.3 inches of water column over a one-hour rolling average.

VI.E.1.b.i.z. The temperature of exhaust gas entering the fixed bed carbon filter shall not exceed 240*°F over a one-hour rolling average.

VI.E.1.b.i.aa. Toxic metals emissions shall be controlled by limiting the agent and agent contaminated waste feed rates to the furnaces. ATLIC metals feed limits are in Table V.4 in Module V. Metals feed shall be determined using procedures specified in Attachment 2 (Waste Analysis Plan).

VI.E.1.c. Waste Feed Cut-Off Requirements

VI.E.1.c.i. The Permittee shall identify the waste feed cut-off instruments in each individual trial burn plan. The Permittee shall identify the instrument number, the operating parameter, and the set point. When the waste feed cut-off tables for the ATLIC are approved as part of the revised trial burn plans, the waste feed cut-off TAG identification numbers and associated set points shall be incorporated into Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.E.1.c.ii. In the event of a malfunction of an ATLIC automatic waste feed cut-off instrument identified in the approved trial burn plan, the Permittee shall immediately manually cut off the waste feed to the ATLIC and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunction, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunction, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

VI.E.1.c.iii. All waste feed cut-off instruments shall be maintained and tested in accordance with Condition V.A.4.

VI.E.1.d. Monitoring Requirements

VI.E.1.d.i. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Condition VI.A.4.a and V.A.1.h.i.

VI.E.2. TRIAL BURN PERIOD

VI.E.2.a. The Permittee shall operate and monitor the incinerator during the trial burn period as specified in each of the trial burn plans approved by the Executive Secretary.

VI.E.2.b. Trial Burn Determinations

VI.E.2.b.i. The Permittee shall make the performance determinations during the trial burn tests as specified for the ATLIC per Condition VI.A.3.a.

VI.E.2.c. Monitoring Requirements

VI.E.2.c.i. All continuous emission monitoring will follow the requirements as specified in Condition VI.A.4.a and V.A.1.h.i.

VI.E.3. POST-TRIAL BURN PERIOD

VI.E.3.a. During the post trial burn periods in accordance with R315-8-15.5(c)(3) and for the minimum period sufficient for the Permittee to analyze samples, compute data, and

submit trial burn results, and for the Executive Secretary to review the trial burn results and make any modifications necessary to the permit, the Permittee shall comply with the following conditions:

VI.E.3.a.i. Limitation on Waste Feed

VI.E.3.a.i.a. After successful completion of the ATLIC Surrogate Trial Burn, the Permittee may feed Agent GA, associated GA Ton Container Rinsate and spent decontamination solutions to the ATLIC at up to 50% of the waste feed rates demonstrated during the trial burn provided:

VI.E.3.a.i.a.1. The Permittee has submitted data from the ATLIC Surrogate Trial Burn to include results for the metals train, dioxin train, particulate/acid gas train(s), and preliminary DRE calculations, and

VI.E.3.a.i.a.2. The Executive Secretary has approved the ATLIC Surrogate Trial Burn Preliminary Data.

VI.E.3.a.i.b. After successful completion of the ATLIC Lewisite Agent Trial Burn the Permittee may process spent decontamination solution which is comingled with the Lewisite and/or Transparency Ton Container water rinses at up to 50% of the spent decontamination solution feed rate demonstrated during the Lewisite Trial Burn provided:

VI.E.3.a.i.b.1. The permitted has submitted data from the Lewisite Trial Burn associated Mini-Burn and the results show that when processing Lewisite at the intended feed rate that metal emission concentrations are less than the values specified in Permit Condition VI.A.3.a.i.

VI.E.3.a.i.c. After successful completion of the ATLIC Lewisite Agent Trial Burn and submission of Preliminary Data Results, the Permittee may feed Lewisite, decontamination solutions, and ton container water rinses to the ATLIC at up to 50% of the waste feed rates demonstrated during the Lewisite Trial Burn. The preliminary data submission shall include results for the metals train, dioxin train, particulate/acid gas train(s), and Lewisite DAAMS.

VI.E.3.a.i.d. The Permittee may feed up to 75% of the ATLIC Lewisite Agent Trial Burn demonstrated feed rate after approval of the ATLIC LIC Lewisite Agent Trial Burn preliminary results by the Executive Secretary for the metals train, dioxin train, and particulate/acid gas train(s).

VI.E.3.a.i.e. Only one type of chemical agent shall be burned in the ATLIC at any given time.

VI.E.3.a.i.f. Agent GA and Lewisite may be fed to the ATLIC during their respective post trial burn periods only if the operating conditions specified in Condition VI.B.3.a.ii. are satisfied and the waste feed cut-off limits specified in the trial burn plans are in effect.

VI.E.3.a.i.g. The Permittee shall not incinerate the miscellaneous agent contaminated liquid wastes in the ATLIC secondary combustion chamber except as allowed in Attachment 2 (Waste Analysis Plan).

VI.E.3.a.i.h. The feed rate of chlorine to ATLIC shall be in accordance with VI.E.3.a.i.a through VI.E.3.a.i.d respective to the agent being processed.

VI.E.3.a.i.i. Throughout the post-trial burn periods, the Permittee shall conduct analysis of the waste to be treated in the ATLIC to verify that the waste feed is within the physical and chemical composition limits specified in Module V and Attachment 2 (Waste Analysis Plan). The procedure shall follow the waste analysis requirements in the trial burn plan and Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures) for agent and other hazardous waste.

VI.E.3.a.i.j The Permitee may feed hazardous waste up to 100 percent of the trial burn demonstrated feed rates provided:

VI.E.3.a.i.j.1 The Executive Secretary has previously approved the preliminary data referenced in Conditions VI.E.3.a.i.b and VI.E.3.a.i.d;

VI.E.3.a.i.j.2 The Permittee has submitted the Notification of Compliance required by Title 40 of the Code of Federal Regulations, Part 63, Subpart EEE to the Utah Division of Air Quality;

VI.E.3.a.i.j.3 The Permittee has submitted revised Conditions V.E.1.a, V.E.1.d, V.E.2, Table V.1 and revised Attachment 19 Tables D-8-2 (Automatic Waste Feed Cut-off Table for the ATLIC) that incorporate operating parameter limits;

VI.E.3.a.i.j.4 The Permittee has submitted the trial burn reports and the Executive Secretary has reviewed the Executive Summary included in the report.

VI.E.3.a.i.j.5 The Permittee shall comply with the requirements of Conditions V.A and V.E. when the requirements of Conditions VI.B.3.a.i.k.2 through VI.B.3.a.i.k.4 have been fulfilled.

VI.E.3.a.ii. Operating Conditions

VI.E.3.a.ii.a. The Permittee shall not treat any hazardous waste in the LIC during the post-trial burn period unless the system is operating in compliance with Condition VI.E.1.b., excluding the feed rates in Conditions VI.E.1.b.i.y.

VI.E.3.a.iii. Waste Feed Cut-Off Requirements

VI.E.3.a.iii.a. The Permittee shall comply with the waste feed cut-off instrument settings specified in Attachment 19 (Instrumentation and Waste Feed Cut-Off Tables).

VI.E.3.a.iii.b. In the event of a malfunction of a ATLIC automatic waste feed cut-off instrument as specified in the approved trial burn plan, the Permittee shall immediately manually cut off the waste feed to the ATLIC and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunctions, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunctions, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

VI.E.3.a.iii.c. All instrumentation shall be maintained and tested in accordance with Condition V.A.4, tested to the frequency specified in Condition V.E.3.c using the methods specified in Attachment 6.

VI.E.3.a.iv. Monitoring Requirements

VI.E.3.a.iv.a. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Condition VI.A.4.a. and V.A.1.h.i.

MODULE VIII
MISCELLANEOUS TREATMENT UNITS

VIII.A. **APPLICABILITY**

VIII.A.1. The requirements of this module pertain to the miscellaneous units described in Attachment 14 (Miscellaneous Treatment Units) and listed below in Conditions VIII.A.1.a through VIII.A.1.f.

VIII.A.1.a. Two Drum Ventilation System (DVS) Enclosures located in DCD Area 10 Igloo 1632

VIII.A.1.b. Two Projectile/Mortar Disassembly Machines (PMDs) located in the ECRs.

VIII.A.1.c. Three Multipurpose Demilitarization Machines (MDMs) and the associated Pick and Place Machines (PKPLs) located in the Munitions Processing Bay (MPB).

VIII.A.1.d. Two Bulk Drain Stations (BDSs) located in the MPB.

VIII.A.1.e. One Drum Ventilation System Sorting Room (DVSSR) located in DCD Area 10 Igloo 1632.

VIII.A.1.e.1 Prior to hazardous waste operations in this Igloo, standard operating procedures must be submitted to the Executive Secretary for initial evaluation.

VIII.A.1.f. One Air Operated Remote Ordnance Access System (Cutter Machine), which can be located in either ECR, or in the MPB.

VIII.A.1.f One Autoclave for the treatment of Secondary Waste located in DCD Area 10 Igloo 1631.

VIII.A.1.f.1 Prior to hazardous waste operations in this Igloo, standard operating procedures must be submitted to the Executive Secretary for initial evaluation.

VIII.A.1.g. Two ATLIC Gloveboxes located in DCD Area 10 Igloo 1639 for the draining of agent and rinsing with decontamination and acid solutions, and water of Agent GA, Lewisite, and "Transparency" ton containers.

VIII.A.2 The Permittee may feed uncut busters from M104, M110, mustard 155mm projectiles and 4.2" HT mortars to the DFS.

VIII.B. **ALLOWABLE WASTE FEED**

VIII.B.1. Reserved

VIII.B.2. The Permittee may treat 155-mm projectiles, and 4.2 inch mortars (hazardous waste codes P999, D002, D003, D004, D006 through D010, D028, D034, and D039) in the PMDs and the MDMs/PKPLs to comply with rates specified in Modules V and VI for the DFS and MPF.

VIII.B.3. The Permittee may treat ton containers. (hazardous waste codes P999, D002, D003, D004, and D006 through D010, D028, D034. and D039) in the BDSs to comply with rates specified in Modules V and VI for the MPF.

VIII.B.4. The Permittee is prohibited from treating waste in the miscellaneous units, identified in Condition VIII.A.1 that is not identified in Conditions VIII.B.2, VIII.B.3, VIII.B.5 and VIII.B.6.

VIII.B.5 Wastes treated in the DVS Enclosures and the DVSSR shall be limited to TOCDF-generated secondary wastes with the following waste codes: P999, F999, D002. D003, D004. D005, D006, D007. D008, D009, D010, D011 and F001-F005 for TOCDF-originated laboratory sample waste.

VIII.B.6 Waste treated in the Autoclave shall be limited to secondary waste with the following waste codes: P999. F999, D002, D003. D004, D005, D006. D007, D008, D010 and D011 after approval.

VIII.B.7. Waste treated in the ATLIC Gloveboxes shall be limited to the Agent GA , Lewisite, and "Transparency" ton containers with one more of the following waste codes: P999, F999, D002, D003, D004, D007, D008, D009, D010, and D021.

VIII.C. IGNITABLE AND INCOMPATIBLE WASTES

VIII.C.1. Ignitable wastes (D001) shall not be treated in the ECRs or MPB.

VIII.C.2. The Permittee shall place only munitions or bulk containers with one type of chemical agent (e.g., GB. VX or Mustard) in the MPB at one time. Only one chemical agent may be placed in the ECRs.

VIII.C.3. The Permittee shall not place chemical agent or munitions containing that chemical agent in a container that previously held a different chemical agent or munitions containing a different chemical agent until the container has been decontaminated to less than 1 VSL.

VIII.D. DESIGN AND OPERATING REQUIREMENTS

VIII.D.1. The Permittee shall comply with the design and operating requirements specified in Attachment 14 (Miscellaneous Treatment Units) of the Permit.

VIII.D.2. The Permittee shall comply with the requirements specified in the Attachment 9 (Contingency Plan) when there has been a release that escapes engineering controls or a fire. explosion. or detonation from the operation of the PMDs. MDMs, or BDSs.

VIII.D.3. If equipment in the ECRs or down line of the ECRs shuts down, any munitions or munition components being processed in the ECRs may remain in the ECRs until the equipment in question is operational. Alternatively, facility personnel may don appropriate PPE and physically retrieve the munitions or munition components from the ECRs and manually place the item(s) into an appropriate overpack for subsequent storage

- The maximum individual drum weight (i.e., packing density [drum weight/drum volume]) or waste bin weight applicable to the waste stream being tested,

- The acceptability of the storage container's material of construction for treating waste if the Permittee desires to treat the waste in storage containers,

- The optimum placement of the control thermocouples within the waste bin or waste storage container to determine when a representative section of the waste's mass has reached the treatment temperature, and

- The penetration of steam or moisture into a representative section of the waste(s) mass by either visual inspection of the treated waste(s) or post-treatment inspection of moisture indicators placed into representative sections of the waste(s) for the purpose of testing.

VIII.D.7.5.b. The Permittee shall provide function plan for each new waste stream and a notice to the Executive Secretary a minimum of fourteen days in advance of conducting a function test. Following each function test. and prior to continue processing of the waste(s) tested. Executive Secretary shall provide written approval that such waste(s) may be processed in the Autoclave by the inclusion of the waste stream(s) description in Table VIII.B.

VIII.D.7.5.c The Permittee shall continuously operate the Carbon Adsorption Filtration system which supports the Autoclave and DVS/DVSSR operations from the time hazardous waste management activities begin in Igloo 1631 and 1632 to the time hazardous waste management activities cease and 1) both igloos and associated equipment within the igloos has been decontaminated sufficiently to achieve a WPL monitoring level and 2) the filter system activated carbon banks which have been exposed to chemical agent have been removed from the filter system.

VIII.D.8. Igloo 1639 Glovebox Operating Requirements

VIII.D.8.a. The Permittee may use the ATLIC Gloveboxes to drain, rinse, decontaminate, and monitor Agent GA, Lewisite, and "Transparency" ton containers.

VIII.D.8.b. The Permittee shall not begin draining agent from ton containers placed in the ATLIC Gloveboxes until the pressure within the affected Glovebox is below - 0.25 inches of water column as measure relative to the ATLIC Processing Bay pressure.

VIII.D.8.c. The Permittee shall maintain the pressure within the affected Glovebox below - 0.25 inches of water column as measured relative to the ATLIC Process Bay pressure until the agent concentration within the affected Glovebox is determined to be less than 1 Vapor Screening Limit (VSL).

VIII.D.8.d. The Permittee shall transfer the agent drained from Agent GA ton containers that are processed in the Gloveboxes directly to the ATLIC Primary Combustion Chamber.

VIII.D.8.e. The Permittee shall transfer the agent drained from Lewisite ton containers that are processed in the Gloveboxes to LCS-Tank-8511 for processing in the ATLIC Primary Combustion Chamber.

VIII.D.8.f. The Permittee shall ensure Agent GA and solid heel residues have been completely removed from the in-process ton container by performing a minimum of one ton container rinse using a sodium hydroxide based decontamination solution followed by a minimum of three rinses using process water.

VIII.D.8.f.1. The Permittee shall drain the contents of the in-process TC between each rinse and transfer the solutions removed to ATLIC SDS-Tank-8523 for processing in the ATLIC LIC Secondary Combustion Chamber.

VIII.D.8.g. The Permittee shall ensure Lewisite and solid heel residues have been completely removed from the in-process ton container by performing a minimum of one ton container rinse using a Nitric Acid based solution, followed by a minimum of three rinses using process water.

VIII.D.8.g.1. The Permittee shall drain the contents of the in-process Lewisite TC between each rinse and transfer the:

VIII.D.8.g.1.i. Spent Nitric Acid to either Nitric Acid Holding Tank (NSF-TANK-8414 or LCS-TANK-8416), and

VIII.D.8.g.1.ii. Water rinses to Spent Decontamination Tank SDS-Tank-8523 for processing in the ATLIC Secondary Combustion Chamber.

VIII.D.8.h. The Permittee shall ensure Transparency Ton Containers have been thoroughly decontaminated by:

VIII.D.8.h.1. Performing a minimum of one ton container rinse using a Nitric Acid based solution followed by a minimum of three rinses using process water. This requirement is applicable to Transparency Ton Containers for which there are no headspace monitoring results and Transparency Ton Containers having headspace monitoring results showing Lewisite was detected.

VIII.D.8.h.2. Performing a minimum of three water rinses. This requirement is applicable to Transparency Ton Containers for which there are headspace monitoring results showing that Lewisite was not detected.

VIII.D.8.h.3. The Permittee shall drain the contents of the in-process Transparency Ton Container between each rinse and transfer the:

VIII.D.8.h.3.i. Spent Nitric Acid to either Nitric Acid Holding Tank (NSF-TANK-8414 or NSF-TANK-8416), and

VIII.D.8.h.3.ii. Water rinses to Spent Decontamination Tank SDS-Tank-8523 for processing in the ATLIC Secondary Combustion Chamber.

VIII.D.8.i. In the event of a failure of the one of the tanks, ton containers, or associated transfer systems specified above, the Permittee may use an alternative intermediate storage tank as allowed by Condition IV.j.2.

VIII.D.8.j. The Permittee shall demonstrate the effectiveness of the ton container decontamination and rinsing by collecting and analyzing a sample of the rinse water. Ton container are determined to successfully emptied and treated if the agent concentration in the final water rinse sample is less then the Waste Control Limit for the agent being processed (20 parts per billion [ppb] for Agent GA and 200 ppb for Lewisite).

VIII.D.8.k. The Permittee may remove emptied and rinsed ton containers from the ATLIC Gloveboxes when the affected Glovebox interior monitoring results are less than 0.2 and 0.5 VSL for agents GA and L, respectively.

VIII.E. DETECTION, INSPECTION, AND MONITORING REQUIREMENTS

VIII.E.1. As described in Attachment 14 (Miscellaneous Treatment Units), the Permittee shall monitor the waste throughput for each miscellaneous unit by use of the Process Data Acquisition and Recording System (PDARS) and the manual records maintained by the control room operators or the Area 10 Igloo (DVS/DVSSR and Autoclave) Operators. The Permittee shall use weighing, before and after draining, to quantify the amount of agent removed in the BDSs.

VIII.E.2. The Permittee shall use the bubbler system and load cells associated with the BDS to determine the quantity of liquid agent drained from a bulk container processed in the BDS. The amount of residual liquid and solid heel remaining in the bulk container shall then be determined by comparing the ton container's initial fill weight with the amount of liquid drained. If the Permittee is unable to determine the quantity of liquid and solid residual heel in the bulk container or the Drain Tube System (DTS) encounters a solid heel before reaching the programmed drain level, the Permittee shall orally notify the Executive Secretary within 24 hours. The Permittee shall record the bubbler reading and load cell reading for each bulk item drained in the Operating Record. If the quantity of agent removed, as determined in Condition VIII.E.1, is not consistent with the bubbler system or the DTS programmed drain level, then the Permittee shall not feed the bulk container to the MPF until a resolution is agreed to orally by the Executive Secretary.

VIII.E.2.a As an alterative to using weights, before and after draining, to quantify the amount of agent removed in the BDS for Baseline Ton Container Processing, the Permittee may confirm the heel weight of drained bulk containers using the DTS and its associated programmed drain levels after the Executive Secretary has approved the correlation between heel depths and heel weights developed during the Mustard Baseline Shakedown Period as allowed by Condition VI.C.1.a.v.

VIII.E.3. The Permittee shall record the results of drain condition in the Operating Record.

VIII.E.4. If the evaluation conducted in accordance with Condition VIII.E.3 indicates that the drain is insufficient to enable feed of the bulk container to the MPF, then the Permittee shall notify the Executive Secretary as to which one of the following courses of action shall be implemented:

VIII.E.4.a. The Permittee shall perform corrective maintenance on the BDS. The bulk container will then be drained again. The drain status will be re-evaluated according to Condition VIII.E.3 or:

Subtitle C TSDF as F999.

VIII.E.17.b.ii Treated secondary wastes with post-treatment headspace agent monitoring results of less than 0.5 Vapor Screening Limit (VSL), but without a demonstrated WCL of less than 20ppb for VX/ GB and 200ppb for mustard, may be managed in roll-offs for off-site transport to a Subtitle C TSDF as P999/F999 with additional offsite controls (special handling through contract requirement) as an added measure of control to reduce potential contact with waste..

VIII.E.17.b.iii Autoclave treated secondary wastes with post-treatment headspace agent monitoring results equal to or greater than 0.5 VSL shall be retreated in the Autoclave.

VIII.E.17.b.iv The Permittee shall notify the Executive Secretary of each instance when a batch of Autoclave treated wastes receives an additional Autoclave treatment. The Executive Secretary may require additional testing or an adjustment to Autoclave operating parameters and drum weight limits for secondary waste streams requiring repeated multiple treatments.

VIII.E.18. ATLIC Glovebox Inspection and Monitoring Requirements

VIII.E.18.a. The Permittee shall inspect each ATLIC Glovebox as specified in Attachment 5 of this Permit.

VIII.E.18.b. The Permittee shall monitor the pressure differential between the interior of the Glovebox and the ATLIC Processing Bay throughout ton container draining and rinsing operations.

VIII.E.18.c. Upon completion of the draining and rinsing, the Permittee shall monitor the interior of the Glovebox before removing the treated ton container.

VIII.F. STORAGE REQUIREMENTS

VIII.F.1. The Permittee may store waste in the form of maintenance residues on the equipment in the ECRs or on the floor of the ECRs provided that Conditions VIII.F.2 and VIII.F.3 are satisfied.

VIII.F.2. Waste in the ECR sumps shall be removed within 24 hours as required by Module IV.

VIII.F.3. The explosive limits of each ECR, as specified in Attachment 14 (Demilitarization Miscellaneous Treatment Units), shall not be exceeded.

VIII.F.4 The Permittee may store open containers of secondary waste in the DVS enclosures and the DVSSR provided the DVS enclosure, the DVSSR doors, and Igloo doors are properly closed and the igloo carbon adsorption filtration system is operable with the primary filter online.

VIII.F.5 The Permittee may store in-process ton containers in the ATLIC Gloveboxes provided that the affected Glovebox is sealed and the pressure within the Glovebox is maintained negative relative to the ATLIC Processing Bay pressure.

MODULE X
AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS, TANKS, CONTAINERS, AND THE HVAC

X.A. APPLICABILITY - EQUIPMENT LEAKS

X.A.1. The Permittee shall follow the procedures and requirements specified by R315-8-18 [40 CFR 264.1050 through 264.1065].

X.A.2. The Permittee shall, as required by R315-8-2.4, determine for each piece of equipment specified by R315-8-18 whether this equipment contains or contacts a hazardous waste or hazardous wastes residue that equals or exceeds 10 percent by weight organic concentration using the analytical test methods and procedures in Attachment 2 (Waste Analysis Plan). The Permittee shall maintain records of these determinations as required by R315-8-18 [40 CFR 264.1064].

X.A.3. R315-8-18 applies to the equipment identified in Table 17-1 of Attachment 17 (Equipment Lists) that is associated with the management of agent in:

X.A.3.a. The TOCDF ACS tank system boundary begins at the suction wands at the drain locations (Bulk Drain Stations (BDSs) and Multipurpose Demilitarization Machines (MDMs) located in the Munitions Processing Bay (MPB) and includes equipment in the Upstairs Munitions Corridor (UPMC) and the Toxic Cubicle (TOX), and ends at the Liquid Incinerator (LIC) primary chambers.

X.A.3.b. The ATLIC Lewisite Agent Collection System boundary begins at the exit of each Glovebox Miscellaneous Treatment Unit located in the ATLIC Processing Bay, and includes Lewisite Agent Holding Tank LCS-TANK-8511, ancillary equipment comprising the re-circulation loop, and ATLIC Lewisite feed pumps and lines, and ends at the ATLIC Primary Combustion Chamber.

X.A.3.c. The ATLIC Agent GA Feed System boundary beginning at the exit of each Glovebox Miscellaneous Treatment Unit located in the ATLIC Processing Bay and ends at the ATLIC Primary Combustion Chamber.

X.A.4. The Permittee shall mark each piece of equipment covered by the requirements set forth by R315-8-18 [40 CFR 264.1050(d)] in such a manner that the equipment can be distinguished readily from other pieces of equipment.

X.B. CHANGE IN PROCESS

X.B.1. Except as described in Condition X.B.3, the Permittee shall perform a waste determination as specified by Condition X.A.2 if there is a change in process that could increase the total organic content of waste contacted by the equipment or the addition of new waste management units.

X.G.15. For the ATLIC hazardous waste storage and treatment tanks and miscellaneous treatment units, air emissions shall be controlled by the level three controls as specified in R315-8-22 (40 CFR264.1086(e)).

X.H. INSPECTION AND MONITORING

X.H.1. The Permittee shall follow the inspection plan and schedule in Attachment 5 (Inspection Plan).

X.H.2. The Permittee shall monitor air emission controls as specified in Attachment 22 (Agent Monitoring Plan).

X.H.3. If any container greater than $0.1m^3$ in capacity (e.g., 55 gallon drum or ton containers) is stored for a period of one year or longer, the Permittee shall visually inspect the container and its cover and closure devices initially and thereafter at least once every 12 months. The container shall be inspected for visible cracks, holes, gaps, or other open spaces into the interior of the container. For storage in the Container Handling Building (CHB) and Unpack Area (UPA), monitoring of the interior of the overpack can be used instead of this visual inspection.

X.H.4. With the exception of ton containers the Permittee shall make a first attempt at repair of any defect detected during the inspection described in Condition X.H.3. no later than 24 hours after detection. Repair shall be completed as soon as possible but no later than five calendar days after detection. If repair of the defect cannot be completed within five calendar days, the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired. Any ton container with a defect shall be managed as described in Attachment 5 (Inspection Plan) and Attachment 12 (Containers).

X.H.5. The Permittee shall inspect containers and maintain a record of the inspections and a copy of the procedure used to determine that containers with a capacity of $0.46m^3$ or greater, which do not meet applicable DOT regulations as specified by R315-8-22 [40 CFR 264.1086(f)], are not managing hazardous waste in light material service.

X.I. RECORDKEEPING AND REPORTING

X.I.1. The Permittee shall maintain records for each container or tank exempted from the standards of Condition X.G.

X.I.2. As required by R315-8-22 [40 CFR 265.1084(b)(2)] and Attachment 2 (Waste Analysis Plan), the Permittee shall record the information from each exempted hazardous waste determination as identified in Condition X.G. (e.g., test results, measurements, calculations and other documentation) including the date, time, and location for each hazardous waste sample collected.

X.I.3. If exempted under Condition X.G., the Permittee shall record the identification number of the hazardous waste management unit in which the waste is treated.

X.I.4. The Permittee shall orally report to the Executive Secretary, within 24 hours, each occurrence when hazardous waste is placed in a waste management unit identified in Table 2 or Table 4 in noncompliance with the conditions specified in Condition X.G.

X.I.5. The Permittee shall submit a written report within 15 calendar days of the time the Permittee becomes aware of the occurrence specified in Condition X.I.4. The written report shall contain the EPA identification number, the facility name and address, a description of the noncompliance event and the cause, actions taken to correct the noncompliance and prevent recurrence of the noncompliance and the report shall be signed and dated by a authorized representative of the Permittee.

X.I.6 The Permittee shall maintain the following information for all container management units identified in Table 2 that are subject to the air emission requirements of R315-8-22 [40 CFR 264.1086]: type of container; type of air emission control; and records of Inspections/Monitoring Information with the required information specified below:

X.I.6.a. For all container management units identified in Table 2 that are used to store containers having a design capacity greater than 121 gallons, the Permittee shall maintain the information used to determine the status of the material as either light or heavy in accordance with R315-7-30 [40 CFR 265.1081].

X.I.6.b. For all container management units identified in Table 2 that are used to store containers for which the less than 500 ppmv exemption is used, as specified in R315-8-22 [40 CFR 264.1082(c)], the Permittee shall maintain the exemption/waste determination information in Condition X.I.6.

X.I.7. The Permittee shall maintain the following information in the Operating Record for all tanks subject to the air emission requirements of R315-8-22 [40 CFR 264.1084], identified in Table 2:

X.I.7.a. An identification number or other unique identification description of the tanks;

X.I.7.b. Date of inspection; type, description, and location of defect; date of detection; and corrective action taken to repair the defect; and

X.I.7.c. Maximum organic vapor pressure of the hazardous waste in the tank, determined in accordance with Condition X.G. Where applicable, the determination shall include the date and time samples were taken, the analytical method used, and the analytical results.

X.J. GENERAL OPERATING CONDITIONS

X.J.1. TOCDF MDB HVAC

X.J.1.a All HVAC filter units and filter unit vestibules shall be maintained at a negative pressure. These pressures will be recorded every four hours in the Operating Record. These pressures will also be recorded each time the unit's operating status is changed. If any of these readings are found to be positive, agent-processing operations within the facility shall cease immediately. A description of the filter system is located in Attachment 5 (Inspection Plan), Paragraph 5.9.

X.J.1.b. Seven 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 Attachment 9 (Contingency Plan) Paragraph ~~9.4.13.5.1~~ 9.1.1.5.1 for maintaining negative pressure.

X.J.1.c. The Permittee shall comply with Attachment 5 (Inspection Plan) for the inspection of the HVAC filter units. For the purpose of compliance with these conditions, each filter unit is defined as beginning at the inlet flange of the filter unit inlet isolation damper and ending at the outlet flange of the filter unit outlet damper.

X.J.2 *Area 10 Igloos 1631 and 1632*

X.J.2.a The Permittee may perform permitted hazardous waste management activities in Igloos 1631 and 1632 when Filter-101 (primary filter) is online.

X.J.2.b The Permittee shall suspend operations of the Autoclave, DVS and DVSSR and seal or remove all waste drums from Igloos 1631 and 1632 during times when Filter-101 is offline and Filter-102 is online.

X.J.3. *ATLIC HVAC*

X.J.3.a. All ATLIC HVAC filter units and filter unit vestibules shall be maintained at a negative pressure when online. These pressures will be recorded every four hours in the Operating Record. These pressures will also be recorded each time the unit's operating status is changed. If any of these readings are found to be positive, agent-processing operations within the facility shall cease immediately. A description of the filter system is located in Attachment 5 (Inspection Plan), paragraph 5.9.2.

X.J.3.b. Two HVAC filter units shall be operational at all times when any hazardous waste is being managed at the ATLIC. During power upsets, the facility shall follow contingency procedures Attachment 9 (Contingency Plan) Paragraph 9.1.1.5.3 for maintaining negative pressure.

X.J.3.c. The Permittee shall comply with Attachment 5 (Inspection Plan) for the inspection of the HVAC filter units. For the purpose of compliance with these conditions, each filter unit is defined as beginning at the inlet flange of the filter unit inlet isolation damper and ending at the outlet flange of the filter unit outlet damper.

X.K. REPLACEMENT OF CARBON FILTER BANKS

X.K.1. The Permittee shall notify the Executive Secretary within seven days after a confirmed breakthrough of chemical agent at 3 Vapor Screening Level (VSL) for GB, VX, and for HD in carbon bank number two of any one of the nine MDB HVAC carbon filter units. Within 30 days from the time of the confirmed breakthrough, the Permittee shall begin operations to replace carbon banks one and two in that unit. If any confirmed agent breakthrough is detected in any other carbon filter midbed (other than midbed #1 or 2), the Executive Secretary shall be notified within 24 hours. The Permittee shall begin operations to replace the carbon banks associated with the confirmed readings within 30 days of the confirmed breakthrough.

X.K.2. The Permittee shall perform the analyses for spent carbon removed from a filter bank in accordance with the Attachment 2 (Waste Analysis Plan). This data shall be maintained in the Operating Record.

X.K.3. The Permittee shall, at a minimum of every 18 months, perform leak test challenges on MDB HVAC carbon filters. The CAL and ATLIC HVAC carbon filters shall be leak test challenged at a minimum of every 12 months. If one or more trays in a bank are replaced, or if maintenance to a bank is preformed that could affect the filter's integrity or leak-tightness additional leak tests shall be performed on the affected banks before that filter is placed on line.

X.K.4. At the TOCDF MDB and TOCDF HVAC carbon filter units, periodic (18-month) leak test challenges are not required for carbon banks one and two, and for any carbon bank three that has been exposed to confirmed agent breakthrough of carbon bank two. At the CAL and ATLIC HVAC exhaust filter units, periodic leak test challenges are not required for carbon bank one and for any carbon bank two that has been exposed to confirmed agent breakthrough of carbon bank one. The challenge data shall be submitted within fifteen days of completion of each complete filter blank challenge to the Executive Secretary.

X.K.5 The Carbon Adsorption Filtration system (primary or back-up) for Igloos 1631 and 1632 shall have the first carbon filter bed replaced when any agent is detected between the first and second midbeds at a concentration greater than or equal to 1.0 VSL. Within 15 days from the time the midbed agent concentration reaches 1.0 VSL, the Permittee shall begin operations to replace the carbon in the affected unit.

X.K.6 If agent is detected beyond the second carbon bed at the exhaust stack of the Igloos Carbon Adsorption Filtration system, then hazardous waste treatment and primary containment operations shall be immediately stopped and the exhaust flow path shall be switched to the back-up filter. All carbon within the filter train that experienced breakthrough shall be replaced with new carbon prior to being placed back into service in accordance with 40 CFR 264.1086(e)(2)(ii) via §264.1087(c)(3)(i) via §264.1033(h)(1).

X.K.7. The Carbon Adsorption Filtration system for ATLIC shall have the first and second carbon filter beds replaced when any agent is detected between the second and third midbeds at a concentration greater than or equal to 1.0 VSL. Within 15 days from the time the midbed agent concentration reaches 1.0 VSL, the Permittee shall begin operations to replace the carbon in the affected unit.

X.L. MONITORING REQUIREMENTS

X.L.1. The Permittee shall stop the feed of munitions to the demilitarization equipment identified in Attachment 14 (Demilitarization Equipment) when an ACAMS alarm occurs for two consecutive cycles in the HVAC filter stack. If the ACAMS alarm is confirmed, the Permittee shall stop furnace operations once all drained agent and partially disassembled munitions have been thermally treated, until a determination has been made as to the cause of the alarm and actions have been taken to prevent the re-occurrence of the alarm. The Executive Secretary shall be notified within 24 hours pursuant to Condition I.U. of a release from the HVAC filter stack.

X.L.2. A Depot Area Air Monitoring System (DAAMS) tube sampling the HVAC stack shall be pulled at least every twelve hours and analyzed. A corresponding Quality Plant (QP) sample shall be pulled at least daily and analyzed. The QP sample shall correspond to one of the twelve-hour samples.

X.L.3. The DAAMS tubes monitoring the most downstream midbed location shall be analyzed immediately if an HVAC stack ACAMS alarms is confirmed. The DAAMS tubes shall be pulled and analyzed in accordance with Attachment 3 (Sampling, Analytical, and QA/QC Procedures).

X.L.4. The HVAC filter unit vestibules shall be monitored in accordance with Attachment 22 (Agent Monitoring Plan) for the presence of chemical agent when the associated filter unit is placed in a standby condition. Feed to the demilitarization equipment described in Attachment 14 (Demilitarization Equipment) shall cease immediately upon a confirmed agent alarm from a HVAC vestibule.

X.L.5. When the HVAC stack ACAMS is off line for more than 10 minutes, the DAAMS tube sampling the HVAC stack shall be pulled and analyzed as soon as the ACAMS is back on line.

X.L.6. HVAC DAAMS tubes are located in the midbeds as specified in Attachment 22 (Agent Monitoring Plan), for GB, VX, and Mustard agent.

X.L.7 Igloo 1631 (Autoclave) and Igloo 1632 (DVS/DVSSR) carbon filtration system shall continuously monitor for agent breakthrough.

X.L.7.1 The Permittee shall continuously sample the exhaust air from the carbon filter train between the first and second carbon bed using DAAMS tubes. The DAAMS tubes will be analyzed for each potential agent that has exhausted into the carbon filtration system, and

X.L.7.2 The Permittee shall sample the exhaust air from the carbon filtration system exhaust stack using ACAMS with confirmation DAAMS. All instances of breakthrough beyond the first carbon filter midbed shall be reported to the Executive Secretary within 24 hours.

X.L.8. The ATLIC HVAC filter shall be monitored for breakthrough of agent between the individual carbon beds as specified in Attachment 22A.

X.L.8.1. The Permittee shall monitor the exhaust air from the ATLIC HVAC Filter System Stack for agent as specified in Attachment 22A.

TABLE 1

AGENT EXPOSURE LIMITS AND AGENT STACK LIMITS

LOCATION	Concentration (mg/m^3)			
	GB or GA[5]	H/HD/HT	VX	L[5]
Source Emission Limit (SEL)[1,2]	0.0003	0.03	0.0003	0.03
General Population Limit[1,3] (Averaging time: 24 hours GB/VX and 12 hours Mustard)	0.000003	0.0001	0.000003	0.003
Short Term Exposure Limit (STEL)[1,3] (15 minutes)	0.0001	0.003	0.00001	0.003
Worker Population Limit[4] (WPL) (12 hours)	0.00002	0.00027	0.0000006	0.003
WPL[4] (8 hours)	0.00003	0.0004	0.000001	0.003
WPL[4] (4 hours)	0.00006	0.0008	0.000002	0.003
Vapor Screening Level (VSL)	0.0001	0.003	0.00001	0.003

1. Public Law 91-121/144 (USC 1512) mandates that the United States Department of Health and Human Services (HHS) review the plans for transporting and/or disposing of lethal chemical agents and make recommendations for protecting human health and safety. HHS delegated review and recommendation authority to the Centers for Disease Control (CDC).

2. The Department of Army proposed the maximum allowable stack concentrations indicated in Table 1. HHS reviewed the concentrations and announced in the March 15, 1988 Federal Register (53 FR 8504) [corrected in 53 FR 11002, April 4, 1988] that the concentrations "met HHS criteria and appear to be more restrictive than limits set on a health base alone", and therefore made no recommendation for changes.

3. CDC published in the Federal Register (FR) Volume 68, Number 196, October 2003 the final AELs for GA, GB and VX. CDC also published in the FR, Volume 69, Number 85, May 3, 2004, recommended AELs for mustard.

4. The 12- hour WPL monitoring level is used for routine historical monitoring. The 8- hour monitoring level is used for LSS air monitoring irregardless of actual sample time. The 4-hour monitoring level is used only for VX if the detection limit cannot be achieved due to interferences.

5. Processed exclusively at the ATLIC

NOTE:

CDC determined that the current available data precluded acceptable exposure limits for mustard agent being precisely defined. CDC concluded that the work-place limits will amply protect a general population 1000 meters or more from the demilitarization site for transportation route. Therefore, protection of the general public is dependent upon meeting the work-place limits within the facility.

TABLE 2-A[1]
AREA 10 LIQUID INCINERTOR (ATLIC) FACILITY
HAZARDOUS WASTES/PERMITTED HAZARDOUS WASTE MANAGEMENT UNITS

	WASTE CODES	INCINERATOR		MISC UNITS	TANK STORAGE TREATMENT			
		ATLIC Primary Combustion Chamber	ATLIC Secondary Combustion Chamber	Ton Container Rinse/Drum Glove-Boxes	Lewisite Agent Collection Tank	Spent Decontamination Solution Tank	Nitric Acid Holding Tank	Major Spill Tank[2]
Agent GA	P999, D004, D007, D008, D021	X		X				X
Lewisite	P999, D004, D007, D008, D009, D010	X		X	X			X
Spent Decontamination Solution	F999, D002, D004, D007, D008, D021		X			X		X
Spent Nitric Acid	P999, F999, D002, D004, D007, D008, D009, D010	X					X	X
TC Rinse Water	F999, D002, D004, D007, D008, D009		X	X		X		X

1. A list of the wastes that will be managed at this facility is shown in Attachment 2
2. Major Spill Tank is maintained empty unless it is required to store a release of liquids greater than the accumulation sump in the ATLIC Facility Toxic Area.

TABLE 4
HAZARDOUS WASTE SUMP [1] SYSTEMS

SUMP I.D.NUMBER[2]	MAXIMUM ALLOWABLE CAPACITY (GALLON)	DIMENSIONS OF SUMP(FEET)	SECONDARY CONTAINMENT VOLUME(GALLON)	LOCATION REFERENCE			UTAH WASTE CODE
				DRAWING[3] COLUMN-ROW	FLOOR	ROOM[4]	
SDS-PUMP-193	89	2.3x2.3x2.25	None required (MDB)	K-9	1	OBS	F999[5]
SDS-PUMP-197	89	2.3x2.3x2.25	None required (MDB)	L-6	1	LAB	F999[5]
BRA-PUMP-103	85	2.25x2.25x2.25	None required (tank)	diked area		BRA	F999[5]
BCS[7]-PUMP-107	400	3x3x6	None required (tank)	N/A		UNLOAD STATION	F999[5]

1 Hazardous waste sumps (meeting the RCRA definition of a tank) must comply with all applicable hazardous waste tank system requirements (R315-8-10).

2 MDB = Munition Demilitarization Building. SDS = Spent Decontamination Solution/System. BRA = Brine Reduction Area.

3 Reference building column-row numbers from Drawings TE-1-G-504, -5, -6, -7, -8, -9, -10, and -11, TE-16-P-4.

4 TMA = Toxic Maintenance Area. DECON = Decontamination. MCR = Munition Corridor. BSA = 1st Floor Buffer Storage Area. MCR-AL = Munitions Corridor Airlock. AL = Airlock. ECV = Explosive Containment Room Vestibule. ECR = Explosive Containment Room. TOX = Toxic Cubicle. SDS = Spent Decontamination Solution area, BRA = Brine Reduction Area. LIC = Liquid Incinerator. MON = Monitor Room. OBS = Observation Corridor. UPA = Unpack Area.

5 Spent decontamination solution. One agent per campaign. Other applicable waste codes are D002, D003, D004, D006, D007, D008, D009, D010, D019, D022, D028.

6 Liquid agent routinely in area. Potential for collection and containment of major agent spill.

7 BCS = Bulk Chemical Storage

TABLE 4a
ATLIC HAZARDOUS WASTE SUMP [1] SYSTEMS

SUMP I.D.NUMBER[2]	MAXIMUM ALLOWABLE CAPACITY (GALLON)	DIMENSIONS OF SUMP(FEET)	SECONDARY CONTAINMENT VOLUME(GALLON)	LOCATION REFERENCE			UTAH WASTE CODE
				DRAWING[3] COLUMN-ROW	FLOOR	ROOM[4]	
SDS-PUMP-8526	89	2.3x2.3x2.25	134	C-5	1	Entry Airlock B	F999[5]
SDS-PUMP-8527	89	2.3x2.3x2.25	134	A-5	1	LIC Room	F999[5], P999
SDS-PUMP-8529	89	2.3x2.3x2.25	134	B-5	1	Entry Airlock A	F999[5]

TABLE 4a

ATLIC HAZARDOUS WASTE SUMP [1] SYSTEMS

SUMP I.D.NUMBER[2]	MAXIMUM ALLOWABLE CAPACITY (GALLON)	DIMENSIONS OF SUMP(FEET)	SECONDARY CONTAINMENT VOLUME(GALLON)	LOCATION REFERENCE			UTAH WASTE CODE
				DRAWING[3]COLUMN-ROW	FLOOR	ROOM[4]	
SDS-PUMP-8530	89	2.3x2.3x2.25	134	D-5	1	TOX Area Room	F999[5]

1 Hazardous waste sumps (meeting the RCRA definition of a tank) must comply with all applicable hazardous waste tank system requirements (R315-8-10).

2 SDS = Spent Decontamination System

3 Reference building column-row numbers from Drawings FG-22-D-8217.

4 TOX = Toxic Cubicle and LIC = Liquid Incinerator

5 Spent decontamination solution. One agent per campaign. Other applicable waste codes are D002, D004, D007, D008, D009, D010, D021.

1

APPENDIX A
ACRONYMS AND ABBREVIATIONS

AAH	Analyzer alarm high
AAHH	Analyzer alarm high-high
AASS	Automatic Agent Sampling System
ACAMS	Automatic Continuous Air Monitoring System
acfm	Actual cubic feet per minute
ACS	Agent Collection System
Ag	Silver
AIC	Analyzer indicator control
AL	Airlock
ALM	Alarm
AMC	U. S. Army Material Command
API	American Petroleum Institute
AQS	Agent Quantification System
AR	Department of Army Regulations
As	Arsenic
ASTM	American Society for Testing and Materials
ATLIC	Area 10 Liquid Incinerator
AUX	Auxiliary
Ba	Barium
BAT	Best Available Technology
BCS	Bulk Chemical Storage
BDS	Bulk Drain Station
Bldg	Building
BRA	Brine Reduction Area
BSA	Buffer Storage Area
BST	Brine Surge Tank
BTM	Bottom
Btu	British thermal unit
°C	Centigrade
CA	Combustion air
CAL	Chemical Assessment Laboratory
CAMDS	Chemical Agent Munition Disposal System (located at Deseret Chemical Depot)
CCL	Chemical Control Limit
CCl_4	Carbon tetrachloride
CCTV	Closed-circuit television
Cd	Cadmium
CDC	Centers for Disease Control
CDS	Central Decontamination Supply
CDTF	Chemical Demilitarization Training Facility
CEMS	Continuous Emissions Monitoring System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act

which are currently stored in a different overpack-transport container. will be transported from the stockpile storage area to the Tooele Chemical Agent Disposal Facility (TOCDF) and stored prior to processing.

x. "Transparency Ton Container" shall mean a ton container than has been determined to be empty of liquids and solid and whose headspace has been sampled for Lewisite.

~~x~~y. "VX" shall mean the nerve agent with the chemical name O-ethyl S- (2-diisopropylaminoethly) methylphosphonothiolate.

Acronyms and abbreviations used in this Permit shall be defined as designated in Appendix A of this Permit.

All definitions contained in R315-1, R315-2, R315-3, R315-8, and R315-9 are hereby incorporated, in their entirety, by reference into this Permit, except that any of the definitions used above shall supersede any definition of the same term given in R315.

Where terms are not defined in the regulations or this Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

~~LIST OF FIGURES~~

~~1-1 Location of Deseret Chemical Depot, dated 26 May 1998~~

~~1-2 Munitions Processing Flow~~

~~1-3 Approximate Groundwater Monitor Well Location, dated 26 May 1998~~

LIST OF TABLES

1-1 Original Stockpile ~~Of~~ of Chemical Weapons to Be Destroyed at TOCDF

1-2 Chemical Agents to Be Destroyed at TOCDF

1-3 Composition of Munitions and Bulk Items

LIST OF ACRONYMS

ATLIC	Area 10 Liquid Incinerator
BCS	Bulk Chemical Storage
BRA	Brine Reduction Area
CAL	Chemical Assessment Laboratory
CAMDS	Chemical Agent Munitions Disposal System
CFR	Code of Federal Regulations
CHB	Container Handling Building
CSB	Communication Switch Building
CSDP	Chemical Stockpile Disposal Program
CWC	Chemical Weapons Convention
DCD	Deseret Chemical Depot
DVS	Drum Ventilation System
DVSSR	Drum Ventilation System and Sorting Room
DFS	Deactivation Furnace System
ECF	Entry Control Facility
GA	Tabun; dimethylphosphoramidocyanidic acid ethyl ester
GB	Sarin, Isopropyl methylphosphonofluoridate
H/HD/HT	Sulfur Mustard[1] /Distilled Sulfur Mustard/Distilled Mustard with 40% Bis-[2-(2-chloroethylthio)-ethyl] ether
HVAC	Heating, Ventilation, Air Conditioning
JACADS	Johnston Atoll Chemical Agent Disposal System
L	Lewisite; dichloro(2-chlorovinyl)arsine
LIC	Liquid Incinerator
LPG	Liquefied Petroleum Gas
MDB	Munitions Demilitarization Building
MSB	Monitor Support Building
MPF	Metal Parts Furnace
NDAA	National Defense Authorization Act
NFPA	National Fire Protection Association
OSIA	On Site Inspection Agency
PAS	Pollution Abatement System
PMB	Personnel Maintenance Building
PMCD	Program Manager for Chemical Demilitarization
POT	Potable Water System
PRW	Process Water System
PSB	Personnel Support Building
PUB	Process and Utility Building
SWMU	Solid Waste Management Unit
T	Bis-[2-(2-chloroethylthio)-ethyl] ether
TCB	Treaty Compliance Building
TMA	Toxic Maintenance Area
TOCDF	Tooele Chemical Agent Disposal Facility
UPA	Unpack Area
VX	O-ethyl-S-(2-diisopropylaminoethyl) methyl phosphonothiolate
WTS	Water Treatment System

[1] Sulfur Mustard = Bis(2-Chloroethyl) Sulfide or 2,2' Dichlorodiethyl Sulfide

1.1 GENERAL DESCRIPTION [R315-3-2.5(b)(1)]

1.1.1 Introduction

1.1.1.1 The Tooele Chemical Agent Disposal Facility (TOCDF) is a multi-incinerator hazardous waste treatment and storage facility located within the federally owned Deseret Chemical Depot (DCD).

1.1.1.2 The TOCDF is designed and constructed for the treatment of the chemical agents and munitions stockpile currently stored at the DCD Area 10 (a.k.a. Chemical Munitions Storage Area). Area 10 is immediately adjacent and physically connected to the northern end of the TOCDF.

1.1.1.3 The Area 10 Liquid Incinerator (ATLIC) is TOCDF operated, but located in DCD Area 10, separate from the TOCDF site. The ATLIC has been built to treat the chemical nerve agent GA and the blister agent Lewisite (L). The ATLIC and other TOCDF-operated facilities are described in paragraph 1.1.2.4.

1.1.2 Facility Location and Setting

1.1.2.1 The DCD is ~~located~~ in the State of Utah ~~and covers~~ on about 7,900 hectares, ~~and is~~ located approximately 26 kilometers (16 miles) south of the City of Tooele, off State Highway 36 at latitude 40° 18' 00" North and longitude 112° 20' 00" West. DCD is ~~located~~ approximately 56 kilometers (35 miles) southwest of Salt Lake City, approximately 48 kilometers (30 miles) south of the Great Salt Lake, approximately 48 kilometers (30 miles) west of Utah Lake, and approximately 61 kilometers (38 miles) west of the city of Provo. ~~Figure 1-1[2] shows the location of the DCD in the Rush Valley of Tooele County and its relation to the other towns, cities, and geographic landmarks in the area.~~ The locations of the TOCDF and the ATLIC are~~lies~~ within the DCD installation boundaries as shown in Drawing TE-16-C-2.[3]

1.1.2.2 DCD is generally rectangular in shape: approximately 6.5 miles in length (east-west) and 5 miles in width (north-south) and comprises 19,364 acres. Several types of chemical agents are stored at DCD in a variety of ammunition configurations, including ton containers, projectiles and mortars. These munitions are stored in Area 10.

1.1.2.3 The processing area at the TOCDF, which is enclosed by a security fence, is comprised of approximately 40 acres. The distance from TOCDF demilitarization site to the nearest DCD boundary (due north) is approximately 2 miles.

1.1.2.4 There are ~~six~~ seven TOCDF-operated facilities, in addition to the TOCDF plant, on the DCD installation, but outside the site boundaries of TOCDF:

1.1.2.4.1 The administration building located at 11600 Stark Road, approximately 3 miles northeast of the TOCDF. This building houses administrative offices only.

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[2] All figures are addressed at the end of this attachment.

[3] All drawings are addressed in Attachment 11.

1.1.2.4.2 The Chemical Assessment Laboratory (CAL). This facility is located approximately 1.5 miles southwest of the TOCDF. The CAL has laboratory quantities of chemicals and neat and dilute solutions of chemical agents on location, but not in quantities sufficient to pose a danger to persons or the environment beyond the boundaries of the lab.

1.1.2.4.3 The area known as Area 2 contains a number of warehouses. TOCDF controls eight of the warehouses in Area 2. These warehouses are used for storage of various items such as office furniture, tools, brick, product chemicals, and construction materials. Warehouses used by TOCDF are buildings 4001, 4002, 4012, 4057, 4058, 4108, 4109, and 4110. TOCDF may use other buildings for the storage of material and equipment. Area 2 is located approximately 2 miles east-southeast of the TOCDF.

1.1.2.4.4 The Transfer Yard is located approximately 1.5 miles east/northeast of the TOCDF.

1.1.2.4.5 Storage 1633, Igloo 1632(Drum Ventilation System (DVS) and Drum Ventilation System Sorting room (DVSSR) Operations and Container Storage), and Igloo 1631 (Autoclave Operations) are located within DCD Area 10 which is immediately adjacent to and physically connected to TOCDF. The balance of Area 10 is permitted under a separate Part B RCRA permit administered by DCD.

1.1.2.4.6 The ATLIC, also located at Area 10 in Igloo 1639 (northwest of TOCDF), is designed and constructed for the treatment of chemical nerve agent GA and blister agent lewisite (L). The ATLIC is accessible through the Area 10 ECF, at the northwest end of Area 10.

1.1.3 Chemical Weapons Destruction Program Overview

1.1.3.1 The U.S. Army maintains a stockpile of chemical agents and munitions for the Department of Defense. This stockpile was established to deter other countries from using chemical weapons on U.S. or allied troops. In 1968, the U.S. stopped manufacturing chemical weapons. The stockpile is no longer deemed necessary for national security.

1.1.3.2 In November 1985, the U.S. Congress approved the Department of Defense Authorization Act (Public Law 99-145) which directed and authorized the destruction of 90 % of the total U.S. stockpile of unitary chemical munitions and agents by 30 September 1994.

1.1.3.3 The Act was first amended on 15 March 1988 when the Army submitted the Chemical Stockpile Disposal Program (CSDP) implementation plan to Congress in which the deadline for destruction of the unitary chemical weapons stockpile was extended to 30 April 1997. This amendment also allowed more full-scale testing of the Johnston Atoll Chemical Agent Disposal System (JACADS) facility.

1.1.3.4 On 28 October 1992, the National Defense Authorization Act (NDAA) for fiscal year 1993 directed the Army to dispose of the entire unitary chemical weapons stockpile by 31 December 2004. The NDAA supersedes Public Law 99-145.

1.1.3.5 In April 1997, the Chemical Weapons Convention (CWC) was ratified by the United States and supersedes the NDAA. The CWC indicates that destruction of the unitary

chemical weapons stockpile must be complete not later than 10 years after entry into force of this Convention (i.e., the year April 2007).

1.1.3.6 Chemical weapons are stored at eight separate sites throughout the continental United States, including the DCD.[4] At the beginning of agent destruction activities in 1996, DCD had the largest portion of the nation's chemical agent stockpile. Table 1-1 shows the makeup of the DCD~~original~~ stockpile that was either already or yet-to-be destroyed at TOCDF and the ATLIC.

[4] The seven other sites are: Pine Bluff Chemical Activity, Arkansas; Anniston Chemical Activity, Alabama; Umatilla Chemical Depot, Oregon; Newport Chemical Depot, Indiana; Edgewood Chemical Activity (Aberdeen Proving Ground), Maryland; Blue Grass Chemical Activity, Kentucky; and Pueblo Chemical Depot, Colorado.

Table 1-1
~~ORIGINAL~~ STOCKPILE OF CHEMICAL WEAPONS FOR DESTRUCTION ~~TO BE DESTROYED~~ AT TOCDF OR THE ATLIC

Agent	Item	Quantity[5]	Pounds[5]
HT-Blister	4.2" Mortars	62,590	363,020
HD-Blister	4.2" Mortars	976	5,860
	Ton Containers	6,398	11,383,420
H-Blister	155mm Projectiles	54,663	639,540
GB-Nerve*	105mm Cartridges	119,400	194,620
	105mm Projectiles	679,303	1,107,260
	M55 Rockets	28,945	309,720
	M56 Rocket Warheads	1,066	11,406
	155mm Projectiles	89,141	579,417
	MK-116 Bombs	888	308,140
	MC-1 Bombs	4,463	981,860
	Ton Containers	5,709	8,598,200
VX-Nerve*	155mm Projectiles	53,216	319,300
	M23 Land Mines	22,690	238,240
	M55 Rockets	3,966	39,660
	M56 Rocket Warheads	3,560	35,600
	TMU-28 Spray Tanks	862	1,168,880
	Ton Containers	640	910,960
GA-Nerve	Ton Containers	4	4,110
L-Blister	Ton Containers	10	25,924

* These agents and munitions have been destroyed as of November 2009.

1.1.3.7 The DCD stockpile of chemical agents includes organophosphate nerve agents and blister agents as listed below:

1.1.3.7.1 nerve agent VX

1.1.3.7.2 nerve agent Sarin (GB)

[5] The Army's Chemical Stockpile Disposal Program began destroying the chemical stockpile at the TOCDF in August 1996. These numbers do not reflect chemical weapons destroyed since operations began. As of June 2005, all bulk containers and munitions containing VX and GB nerve agents have been eliminated from the stockpile.

1.1.3.7.3 blister agents mustard (H, HD, and HT).

1.1.3.7.4 nerve agent tabun (GA)

1.1.3.7.5 blister agent lewisite (L), an arsine compound.

1.1.3.8 Information on chemical agent characteristics are briefly described in Table 1-2.

Table 1-2
CHEMICAL AGENTS FOR DESTRUCTION ~~TO BE DESTROYED~~ AT TOCDF OR ATLIC

Agent	Description
GB*	GB (Sarin) is a rapid-acting nerve agent. The action within the body is the inactivation of cholinesterase. The hazard from GB is that of vapor absorption through the respiratory tract. although it can be absorbed through any part of the skin, through the eyes. and through the gastrointestinal tract by ingestion. The agent absorption rate is accelerated through cuts and abrasions in the skin. When dispersed as large droplets. GB is moderately persistent; it is nonpersistent when disseminated as a cloud of very fine particles.
VX*	VX is a rapid-acting nerve agent. The action within the body is the inactivation of cholinesterase. The hazard from VX is primarily that of liquid absorption through the skin, although it can be absorbed through the respiratory tract as a vapor or aerosol, and through the gastrointestinal tract by ingestion. VX is slow to evaporate and may persist as a liquid for several days.
Mustard	Mustard is a persistent and powerful blister agent. It acts principally by poisoning the cells in the surfaces contacted. Both liquid and vapor cause intense inflammation and may cause severe blistering of both the skin and mucous membranes. Mustard is only moderately volatile. Mustard is designated H. HD. and HT. H is mustard made by the Levinstein process. It contains up to 25 percent by weight of impurities, chiefly sulfur. organosulfur. and polysulfides. HD (distilled mustard) is mustard purified by washing and vacuum distillation, which reduces the impurities to about 5 percent. HT is a 60:40 mixture by weight of HD and T. T is an abbreviation for Bis-[2-(2-chloroethylthio)-ethyl] ether.
GA	GA (tabun) is a rapidly -acting nerve agent that inactivates cholinesterase shortly after contact. The hazard from GA is that of vapor absorption through the respiratory tract, although it can be absorbed through any part of the skin, through the eyes, and through the gastrointestinal tract (ingestion). The agent absorption rate is accelerated through cuts and abrasions in the skin. When dispersed as large droplets, GA is moderately persistent; it is nonpersistent when disseminated as a cloud of very fine particles.
L	Lewisite is a powerful irritant and blistering agent that immediately damages the skin, eyes, and respiratory tract. The biggest hazard of L is that of vapor absorption through the respiratory tract, although it can be absorbed through skin, eyes, and gastrointestinal tract (ingestion). Because it contains arsenic, lewisite has some effects that are similar to arsenic poisoning, including stomach ailments and low blood pressure.

* These agents and munitions have already been destroyed.

Table 1-3 COMPOSITION OF MUNITIONS AND BULK ITEMS					
Munition	**Agent**	**Fuse**	**Burster**	**Propellant**	**Dunnage**
4.2 in. mortars	HD, HT	Yes	Yes	Yes	Yes
155-mm projectiles	H	No	Yes[7]	No	Yes
Ton Containers	H, HD, L, GA	No	No	No	No

1.1.4 **Chemical Agent Demilitarization Process Overview**

1.1.4.1 The TOCDF system involves reverse assembly of chemical agent-filled munitions and includes four incinerators for agent destruction.

1.1.4.2 The TOCDF-operated ATLIC includes a Liquid Incinerator (LIC) for thermal destruction of chemical agents GA and L, which are stored in ton containers in DCD Area 10.

1.1.4.3 ~~Figure 1-2 presents a simplified flow diagram of the incineration treatment processes followed at the TOCDF.~~ The treatment processes are based on the destruction of chemical agents and energetic materials (energetics at TOCDF only) by incineration. The primary processes employed at the ~~plant~~ TOCDF and ~~ANCDF a~~ATLIC and~~nd~~ simplified ~~TOCDF~~ layouts are ~~is~~ briefly discussed below.

1.1.4.3 Munitions Processing

1.1.4.3.1 The munitions processing at the TOCDF includes initial separation of explosives and draining of the chemical agent. The Deactivation Furnace System (DFS) processes explosives removed from mortars, and projectiles. The Metal Parts Furnace (MPF) thermally decontaminates all drained bulk items, projectiles, and mortars from which the energetic components have been removed.

1.1.4.3.2 The ATLIC will be disposing only of GA, L, and Transparency tTon econtainers and spent decontamination (spent decon) and rinse solutions; there are no explosives involved.

1.1.4.4 Agent Processing

1.1.4.4.1 The ~~drained~~ chemical agents mustard, GA, and L that are drained from bulk items and munitions are~~is~~ burned in the various Liquid Incinerators (LICs), along with spent decontamination solution and miscellaneous waste liquids. The TOCDF has two LICs and the ATLIC has one.

1.1.4.5 Pollution Abatement System

[7] While the majority of these items contain bursters, some are stored without these components.

1.1.4.5.1 The flue gases from the DFS, MPF, and LICs are treated via separate wet Pollution Abatement Systems (PAS). The scrubber liquid (brine) from the wet scrubbers is pumped to storage tanks and transported off site for treatment and disposal.

1.1.4.6 Plant Operation

1.1.4.6.1 The TOCDF is operated 24 hours per day, 7 days per week, and 52 weeks per year. Personnel are at the site at all times.

1.1.4.6.2 The ATLIC operates 24 hours per day and 7 days per week. Personnel are at the site at all times.

1.1.5 **Hazardous Waste Disposal/Generation**

1.1.5.1 Chemical Agents and Munitions

1.1.5.1.1 When the munitions or bulk agents are delivered to the TOCDF or ATLIC from Area 10, the physical and accounting responsibilities~~y is~~ are transferred from the storage account managed by the DCD commander to a demilitarization accounts managed by the TOCDF or ATLIC Site Project Managers, and the items are removed from the Army's inventory of chemical munitions. At this point, all bulk items and munitions will be classified as ~~a~~ hazardous wastes. Agents GB, VX, GA, L, and mustard ~~agent~~ are classified as ~~a~~ hazardous wastes by the State of Utah.

1.1.5.2 Potentially Hazardous Wastes Generated at the TOCDF and ATLIC

1.1.5.2.1 In addition to chemical agent and munition wastes, there are potentially hazardous wastes generated during TOCDF and ATLIC operations that may require either interim storage, further on-site treatment, or shipment off site to an approved hazardous waste management facility. Waste streams generated at the TOCDF and ATLIC are described in detail in the Attachment 2 (Waste Analysis Plan). These wastes include but are not limited to:

1.1.5.2.1.1 The brine generated from the incinerator pollution abatement system.

1.1.5.2.1.2 Reserved.

1.1.5.2.1.3 Dry residues and ash collected from the TOCDF DFS.

1.1.5.2.1.4 Ash from the operation of the TOCDF MPF.

1.1.5.2.1.5 Ventilation system and PAS filters.

1.1.5.2.1.6 Monitoring support and laboratory wastes generated from onsite chemical analysis.

1.1.5.2.1.7 Spent Decontamination Solution.

1.1.5.2.1.8 Ton container rinsate

1.1.5.2.1.9 Personal Protective Equipment (PPE)

1.1.5.2.1.10 Decontaminated ton containers

1.1.5.2.1.11 ATLIC construction waste

1.1.5.2.1.12 PAS particulate removal device waste

1.1.5.3 RCRA Hazardous Waste Treatment and Storage Units that are Permitted

1.1.5.3.1 The hazardous waste management (process) systems consist of Container Storage, Tank Storage, Treatment in Tanks, Liquid Injection Incineration, Rotary Kiln Incineration, Multiple Hearth Incineration, Treatment In and Using Miscellaneous Treatment Units. Treatment codes are referenced in R315-50-2.

1.1.5.3.2 The incinerators are classified as hazardous waste incinerators because they are enclosed devices that use controlled flame combustion to thermally break down hazardous waste. The containers hold explosives, propellants, the various agents (e.g., ton containers and other items of equipment that contain these materials), and brine salts and dry residues from combustion. The storage of chemical agents, explosives, and propellants in the munitions and bulk items are addressed as container storage with regard to the hazardous waste regulations.

1.1.5.3.3 Chemical and physical characteristics of the chemical agents and explosives are described in the Attachment 2 (Waste Analysis Plan). Tanks hold agent, spent decontamination solution, brine, and miscellaneous liquids listed in Module IV.

1.2 TOPOGRAPHIC MAP [R315-3-2.5(b)(19)]

1.2.1 General

1.2.1.1 The following drawings ~~and figures~~ are used to satisfy specific TOCDF ~~facility~~ description requirements:

1.2.1.1.1	TE-16-C-2	Overall Site Plan & Vicinity Map
1.2.1.1.2	TE-16-C-3	Topographic Map (restricted access - protected record)
1.2.1.1.3	TE-16-C-4	Site Work Area 1 Plot Plan
1.2.1.1.4	TE-16-C-5	Site Work Area 2 Plot Plan
1.2.1.1.5	TE-16-C-6	Site Work Area 3 Plot Plan
1.2.1.1.6	EG-16-C-7402	Site Work Storm Drain Plan
1.2.1.1.7	TE-22-C-10	Sewage Lagoon Site & Grading Plan
1.2.1.1.8	TE-22-C-13	Reservoir Site and Grading Plan
~~1.2.1.1.9~~	~~Figure 1-1~~	~~Location of Deseret Chemical Depot~~
~~1.2.1.1.10~~	~~Figure 1-3~~	~~Approximate Groundwater Monitor Well Location~~

1.2.1.2 Drawing TE-16-C-3 (restricted access - protected record) is a Topographic Map of the TOCDF site and includes the local surrounding area to a distance of at least 1,000 feet from the site perimeter. Map scale is 1 inch equals 100 feet and the contour interval is 5 feet.

1.2.1.3 The ATLIC is in Area 10, which includes permitted hazardous waste container storage units regulated by the DCD RCRA Permit. Area 10 is depicted in TE-16-C-3 and the ATLIC is detailed in EG-22-G-8221 (no scale).

1.2.2 **Map Scale and Date**

1.2.2.1 The current revision and date of each drawing is indicated in the lower right-hand title block. The current date of each drawing is indicated in the lower right-hand corner. Likewise the scale of each map is shown, unless otherwise noted.

1.2.2.2 Drawings TE-16-C-2 and TE-16-C-3 are drawn to a scale of 1 inch equals 100 feet. The DCD portion of Drawing TE-16-C-3 is drawn to a scale of 1-inch equals 2500 feet. Drawing EG-22-G-8221 does not indicate scale.

1.2.3 **100-Year Flood Plain**

1.2.3.1 The DCD has not been mapped for the National Flood Insurance Program and thus there are no 100-year floodplain maps for the installation. The floodplain standard is discussed in further detail in section 1.3.2.

1.2.4 **Surface Waters**

1.2.4.1 The DCD TOCDF and ATLIC sites ~~at the DCD~~ are~~is~~ located at an elevation (approximately 5170 feet)[8] overlooking a relatively flat and arid lowland basin known as Rush Valley. The TOCDF buildings are approximately 140 feet higher in elevation than the valley floor and more than 7,000 feet horizontally distant.[9]

1.2.4.2 Area 10, where Igloo 1639 (the ATLIC) is located, is built on an evenly-graded site that is relatively unpaved, so there is little runoff. The ATLIC will not impact surface waters because the entire facility is enclosed, including the PAS.

1.2.4.3 Water-related features pertinent to the TOCDF and ATLIC sites are minor in importance, primarily because of their absence. Surface waters in Rush Valley include Rush Lake, Faust Creek and Reservoir, Vernon Creek and Reservoir, Ophir Creek, Clover Creek, and shallow ponds east of the town of Rush Valley. Several seasonal small streams, which originate in the Oquirrh, Stansbury, Onaqui, Tintic, and Sheeprock Mountains, disappear on the dry Rush Valley floor. No surface waters leave the valley. Runoff in Tooele Valley, which lies north of Rush Valley, drains to the northwest and into the Great Salt Lake. Most groundwater recharge occurs through infiltration of precipitation in the mountains, and to a lesser degree, from stream recharge and irrigation. The topography of the drainage basin is generally smooth and uniform, sloping to the west from the

[8] Precise TOCDF site brass cap monument elevation markers are indicated on Drawings TE-16-C-5 and TE-16-C-6.

[9] The brass cap monument markers located on the commercial railway due west of the TOCDF indicate an elevation of 5030 feet. (United States Geological Survey, Saint John Quadrangle, edited 1993).

TOCDF to the Rush Valley floor. The valley floor drains to Rush Lake, which is located approximately 11 miles northwest from the TOCDF.[10]

1.2.4.~~3~~4 The 460-square mile Rush Valley drainage basin is characterized as having poorly drained alkaline soils of moderately consolidated and unconsolidated layers of sand, gravel, silt, and clay.[11] Nevertheless, floods do not occur because of the arid climate and the storm water drainage system installed at the TOCDF. The lack of intermittent streams or defined flow paths in the valley confirms the lack of flooding potential. The elevation of the TOCDF above the valley floor further protects it from flood threats.

1.2.5 **Surrounding Land Uses**

1.2.5.1 The location of the TOCDF within the DCD installation boundaries is shown on Drawing TE-16-C-2. Also located on DCD property are the Chemical Agent Munitions Disposal System (CAMDS) facility, the CAL, ATLIC, and associated TOCDF operated facilities as described in 1.1.2.~~3~~4. DCD (except Igloos 1631, 1632 and 1633) and the CAMDS facility operate separately and independently of the TOCDF and are not addressed in this document; however, ~~whereas~~ the CAL and ATLIC (Igloo 1639) plays an integral part in TOCDF demilitarization operations. DCD also oversees other activities that relate to the overall operation of the Depot. Other areas within DCD are open range and are controlled by the military. The majority of the land surrounding DCD is likewise federally owned.

1.2.5.2 Much of the 6,919 square mile Tooele County, where DCD is located, is sparsely populated. DCD was constructed in 1942 in Rush Valley. Originally, DCD was a relatively remote area, accessible only by a railroad that was used for collection and distribution of munitions. Access to Rush Valley is possible on State Highway 36 from the north and State Highway 73 from the east.

1.2.5.3 Year 2000 population figures estimate the population for all of Tooele County at approximately 40,000. Presently, the majority of the county's population is concentrated north of the South Mountain geologic land formation, which separates Rush Valley from Tooele Valley.[12]

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[10] The elevation of Rush Lake is estimated to be approximately 5000 feet. ~~See Figure 1-1 for the location of Rush Lake and mountain ranges.~~

[11] The Rush Valley is an elongated, north-south oriented, intermountain basin located between the Oquirrh Mountains to the east, the Stansbury and Onaqui Mountains to the west, and the Shiprock Mountains to the south. Rush Valley is located in the eastern Basin and Range physiographic province and is representative of intermountain basins within the province. Rush Valley is partially filled with alluvial sediments and lake beds. Geologic formations in the vicinity consist of Paleozoic sedimentary rock, along with gravel, sand, and clay. The TOCDF is located near the base of the Oquirrh Mountains, where the land surface consists of relatively porous colluvial and alluvial deposits containing sand and gravel, with some conglomerate and clay.

[12] Year-end population estimates are as provided by Utah Department of Workforce Services.

1.2.5.4 A few small communities, including Stockton, Rush Valley, and Ophir, ranches, and mines are located between a 10-kilometer to 25-kilometer (6-mile to 15-mile) radius of the TOCDF. No city or town lies within 10 kilometers (6 miles) of the TOCDF.

1.2.5.5 Land use outside the DCD is dominated by livestock grazing. Beef cattle lead as the primary livestock, followed by sheep.

1.2.5.6 Cropland accounts for only a minute fraction of the agricultural land use around DCD. Only 2.9% of the Rush Valley Basin has been cultivated for growing crops. Crops grown in the area include wheat, barley, corn, oats, and alfalfa. Since rainfall in the valley is limited, irrigation is a common practice among the agricultural sector. Water is obtained from nearby streams and water storage reservoirs.

1.2.6 **Wind Rose**

1.2.6.1 The wind rose for the TOCDF is included on Drawing TE-16-C-3 (restricted access - protected record). The wind rose plot is from data collected at the DCD weather station located in Building 5108 and reflects 1997-year end data from Weather Station 9. The prevailing winds at the TOCDF area follow the orientation of the mountain ranges flanking either side of the facility.[13] Winds are prevalent from the south through southeast in the summer and from the north through northwest in the winter.

1.2.6.2 The Area 10 (ATLIC) wind rose falls under the DCD RCRA Permit.

1.2.7 **Map Orientation**

1.2.7.1 All drawings referenced in Paragraph 1.2.1 have a north arrow direction indicator.

1.2.8 **Legal Boundaries of the Facility**

1.2.8.1 Drawing TE-16-C-2 shows the legal boundaries of the TOCDF. The legal boundaries of the TOCDF are defined as the area enclosed by the outer security fence and the portion of the existing fence along Heart Street that connects the TOCDF to Area 10 perimeter fence. The only waste management units in the immediate vicinity of the TOCDF plant are those units located at the facility itself and Igloos 1631, 1632, ~~and~~ 1633, and 1639 within DCD Area 10, located adjacent to and connected with TOCDF.

1.2.9 **Access Control**

1.2.9.1 Access to the DCD is via County Road 198, connecting State Highway 73 to the Main (North) Gate, and via State Highway 73 directly connecting to the Doolittle Road and the East Gate.

1.2.9.2 Entry to the TOCDF is controlled through the Entry Control Facility (ECF) located at the southern end of the facility. Attachment 4 (Security) provides a detailed narrative describing the security measures that are in place at the TOCDF and how access is

[13] ~~As shown in Figure 1-1, t~~The Oquirrh Mountains lie to the east and the Onaqui and Stansbury Mountains to the west of the TOCDF.

controlled. All personal vehicles are parked outside of the TOCDF and do not impact the traffic within the fence.

1.2.9.3 Entry to the ATLIC is controlled through the Area 10 ECF located at the northwest end of Area 10. Security is provided by the DCD and falls under the DCD RCRA Permit.

1.2.9.4 Generally, all traffic (including government vehicles, commercial carriers, and privately owned vehicles) follows the primary traffic route. Only security vehicles, conventional-munitions transportation vehicles, and maintenance vehicles travel off of the primary route.

1.2.9.~~4~~5 As shown in Drawing TE-16-C-2, the TOCDF is immediately adjacent to and physically connected to Area 10, and therefore, the area becomes a contiguous restricted area. Consequently, there are no over-the-road transport or demilitarization items outside of this area. The ATLIC is inside Area 10, and there are no over-the-road transports or demilitarization items outside this area.

1.2.10 **Local Well Information and Groundwater Conditions**

1.2.10.1 There are no injection or withdrawal wells located at the TOCDF or ATLIC. ~~Figure 1-3 shows the approximate locations of~~There are six groundwater monitoring wells ~~found~~ near the TOCDF sewage lagoon.

1.2.10.2 Groundwater occurs in three distinct aquifers in Rush Valley. The most extensive aquifer is the basin-fill aquifer. The overlying, relatively impermeable, clay-sized lacustrine sediments confine this aquifer, and restrict hydraulic communication between it and the playa surfaces. The sand and gravel of the alluvial fans along the flanks of the mountains compose the second alluvial-fan aquifer. The highest quality groundwater obtainable in Rush Valley is contained in this aquifer. The third is an unconfined, shallow-brine aquifer, which lies just below the valley surface. Groundwater quality in the Rush Valley ranges from fresh to briny.

1.2.10.3 Recharge to Rush Valley is almost entirely provided by rainfall and snow melt from the surrounding mountains. The basin-fill aquifer is recharged by subsurface inflow from adjacent alluvial fans and underlying Tertiary or Paleozoic rocks.

1.2.10.4 A southwest-to-northwest trending groundwater divide, which passes through the DCD, separates the flow of groundwater in Rush Valley into two distinct regions. Precipitation entering the ground water beneath the TOCDF and ATLIC can flow either toward South Mountain or the Thorpe Hills, depending upon which side of the divide they enter the aquifer.

1.2.11 **Buildings/Structures**

1.2.11.1 Drawing TE-16-C-2 shows all existing buildings, roads, railroads and fences in the vicinity of the TOCDF. Major buildings/structures located inside the TOCDF security fence include the following: Container Handling Building (CHB); Entry Control Facility (ECF); Monitor Support Building (MSB); Treaty Compliance Building (TCB); Pollution Abatement System (PAS); Personnel Maintenance Building (PMB); Process and Utility

Building (PUB); Various craft shops and supply warehouses; Brine Reduction Area Pollution Abatement System (BRA PAS): Heating, Ventilation, Air Conditioning (HVAC) Filters; and Munitions Demilitarization Building (MDB).

1.2.11.2 Major components of the MDB include the following: Deactivation Furnace System (DFS); Metal Parts Furnace (MPF); Two Liquid Incinerators (LICs): Control Room: and various disassembly and support areas essential for processing the full range of the DCD's unitary stockpile of agents and munitions.

1.2.11.3 Major buildings/structures located outside the TOCDF security fence include the following: Chemical Assessment Laboratory (CAL); Communication Switch Building (CSB); Personnel Support Building (PSB): On-Site Inspection Agency (OSIA); Warehouse Buildings S-7 and S-8, and Area 10 Igloos 1631, 1632, ~~and~~ 1633, and 1639, *which ~~lie~~ are within the Area 10 security fence.*

1.2.12 **Sewers (Storm, Sanitary, Process)**

1.2.12.1 There are no sanitary or process sewage systems within the 1,000-foot radius of the TOCDF, other than the one constructed for the TOCDF. Location of the TOCDF Sewage Lagoon is shown on Drawing TE-22-C-10. Area 10 sewers are covered by the DCD RCRA Permit.

1.2.13 **Loading/Unloading Areas**

1.2.13.1 The chemical agents stored at the DCD Area 10 are stored in mortars, artillery projectiles, and ton containers. The munitions or bulk containers are loaded into overpacks in Area 10, placed on specialized trucks, and taken to the TOCDF CHB.[14] The overpacks are moved from the CHB by conveyor to the Unpack Area (UPA) of the MDB. At the UPA, the air inside the overpack is monitored for agent, which would indicate a leaking container.

1.2.13.2 A second TOCDF unload area involves the transfer of fuel and bulk chemicals from trucks to the Bulk Chemical Storage (BCS) facilities and Liquefied Petroleum Gas (LPG) tank.[15] The BCS facilities house the concentrated chemical solutions from which the decontamination, caustic wash, and neutralization solutions are made. The bulk chemicals are sodium hydroxide (18% by weight) and sodium hypochlorite (12% or less by weight). LPG and each bulk chemical have its own storage tank or tanks, its own supply pumps, and its own distribution system. Tanker trucks supply the feedstock for the bulk chemicals or LPG. The trucks supply the TOCDF with bulk chemical stock solutions in the concentrations shown above.

1.2.13.3 Igloo 1639 (ATLIC) was selected to house the Area 10 Liquid I~~GA/L~~ incinerator because of its close proximity to the Area 10 GA/L ton container storage. Delivery of these tons to Igloo 1639 will be accomplished by open-bed truck and forklift. These tons will not

[14] See Drawing TE-16-C-5.

[15] See Drawing TE-16-C-4.

be in ~~in~~ overpacks because of the short transfer distance and the small number of tons to be processed at the ATLIC.

1.2.14 **Fire Control Facilities**

1.2.14.1 The MDB interior fire systems are designed to meet National Fire Protection Association (NFPA) standards. The fire water storage requirement is 330,000 gallons. Portable fire extinguishers, a sprinkler system, dry chemical systems. Halon system. and FM-200/FE-227 system are all built into the facility to minimize the threat of fire.

1.2.14.2 The ATLIC fire system is covered by the DCD RCRA Permit and supported by the DCD Fire Marshall

1.2.14.3 Water for the TOCDF and ATLIC is pumped from two wells located north of Stark Road (approximately 2 ¼ miles northeast of the TOCDF).[16] Pumps are installed at the existing DCD withdrawal wells to produce the anticipated 616,000 gallons per day required at DCD. The DCD withdrawal wells are located east-northeast of the TOCDF and more than 5 miles distant. The well pumps supply water to the two existing reservoirs (with a combined capacity of 1 million gallons). Army Regulation. Mil 1008C, prescribes the volume of reserve water provided for fire fighting as 337,000 gallons. The two DCD 500,000 gallon water tanks serve as the emergency fire water reserve for TOCDF.

1.2.14.~~3~~4 The water is chlorinated at the wellhead and then moves to the two 500,000 gallon DCD water tanks. Water flows from the DCD water tanks to the TOCDF and ATLIC via 12" and 20" diameter water lines. A 12" diameter pipe loop around the TOCDF supplies fire-fighting water to the site and to the fire suppression systems in the CHB. PMB, and MDB. A pipe from this loop supplies water for the Water Treatment System (WTS. located in the PMB). Softened water from the WTS feeds the Potable Water System (POT) and Process Water Systems (PRW).

1.2.15 **Flood Control and Drainage Barriers**

1.2.15.1 Drawings TE-16-C-2 and TE-16-C-3 are topographic maps of the TOCDF and the local *surrounding area; Area 10 is depicted in the former drawings*. (***Note:*** *TE-16-C-3* is considered "restricted access – protected record.") Drainage from these facilities~~y~~ is westerly. The overall drainage gradient for the ~~TOCDF~~ is 1% or greater. The topography is generally smooth and uniform, allowing no chance for ponding or pooling of runoff waters. Natural drainage channels exist and do not direct water onto the facility.

1.2.15.2 The TOCDF covers approximately 40 acres and is largely covered by dirt, gravel, and impermeable surfaces (for example, buildings, asphalt, and concrete paving). Runoff from the TOCDF is controlled by the slope of the asphalt and concrete pavement and is directed towards storm drains. ditches. and culverts within the TOCDF. All on-site surface runoff is collected in an underground drainage system and routed to the storm drain detention pond.[17] The pond is sized for the 100-year storm. Temperatures as well

[16] See Drawing TE-16-C-2.

[17] The storm water detention pond lies approximately 200 feet due west of the TOCDF as

as types and amounts of precipitation are discussed in paragraph 1.2.15.3 below. No surface waters are used as public water supplies in the immediate vicinity of TOCDF. Surface water is used primarily for agricultural purposes in Rush Valley. The ATLIC flood control and drainage barriers are covered by the DCD RCRA Permit.

1.2.15.3 The climate of the ~~TOCDF~~ DCD is characterized as dry continental and is heavily influenced by the mountains surrounding the facility. Temperatures are frequently above 32°C (90°F). High temperatures of 37°C (100°F) and low temperatures of -17°C (0°F) occur. The area is noted for plentiful sunshine, low relative humidity, and light precipitation. Annual rainfall varies between 25-30 centimeters (10-12 inches), distributed primarily from mid-fall through late spring. April is the wettest month, with an average of 2.00 inches of rain. July is the driest month, with an average of 0.64 inches. Snow averages 40 inches per year, with the maximum (13.2 inches average) in January, and snowfall greater than 1 inch during each month from October through April.

1.2.15.4 There is minimal tornado exposure (no known touchdowns in the valley since 1984) and minimal earthquake exposure.

1.2.16 **Run-off Control Systems**

1.2.16.1 The location of the TOCDF and ATLIC are ~~is such that it is~~ virtually devoid of surface water features or intermittent streams.[18] The access road to the North and East of TOCDF acts as a barrier to divert runoff from higher elevations. Drawings TE-16-C-32, -33, -34 and EG-16-C-7402 detail the storm drainage features of the TOCDF.

1.2.17 **Proposed New and Existing Hazardous Waste Management Units**

1.2.17.1 The only waste management units in the immediate vicinity of the TOCDF plant are those units located at the facility itself and Igloos 1631 (Autoclave), 1632 (Drum Ventilation System/Drum Ventilation System Sorting Room and Container Storage), ~~and~~ 1633 (Container Storage), and 1639 (ATLIC) located in Area 10 immediately adjacent to TOCDF.[19]

1.2.18 **Spill Sites**

1.2.18.1 Module VII provides information regarding spill sites.

1.3 **LOCATION INFORMATION**

1.3.1 **Seismic Standard [R315-3-2.5(b)(11), R315-8-2.9(a)]**

1.3.1.1 The DCD is located in Tooele County, which is one of the counties listed in 40 CFR 264 Appendix VI. Since the installation is located in a political jurisdiction listed in

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indicated on Drawing TE-16-C-3.

[18] See paragraphs 1.2.4 through 1.2.4.2 for a discussion of surface water features in Rush Valley.

[19] See Drawing TE-16-C-3.

1.3.2.2 There is no history of flooding in the area. No floods have occurred at DCD since the depot came into existence in 1942.

1.3.2.3 The overall drainage gradient for the entire TOCDF and ATLIC areas is 1% or greater. The topography is generally smooth and uniform, allowing no chance for ponding or pooling of runoff waters. The lack of intermittent streams or defined flow paths in Rush Valley confirm the lack of flooding potential. The location of the TOCDF is such that it is virtually devoid of surface water features or intermittent streams. The closest body of surface water (i.e., 3-4 foot wide Ophir Creek) is located more than 1000 feet north of the TOCDF fence and does not appear on the topographic maps.

1.3.2.4 Drainage for the entire DCD is westerly, and the low area is more than 170 feet lower in elevation, and approximately 11 miles distant (i.e., Rush Lake) from the TOCDF.

1.3.2.5 Few well-defined natural drainage channels exist in the vicinity; there are none that would carry or direct water to or through the site.

1.3.2.6 All on-site surface runoff is collected in an underground drainage system and routed to the storm drain detention pond sized for the 100-year storm.

1.3.2.7 No significant vegetation exists to retain runoff waters.

1.3.2.8 The area is arid to semi-arid and receives little precipitation. The 100-year 24-hour precipitation event is less than 3.3 inches.

1.3.2.9 Due to local drainage at the site, the Rational Method was used to establish the 100-year frequency peak flow. The Rational Method is a simple, but accurate, hydrologic estimating technique generally used in small drainage area such as the local flow area at the TOCDF and ATLIC. There was no hydrologic study performed for the Rush Valley floor, given the site's history of no flooding and the relative height of the TOCDF above the valley floor. No computer modeling was performed for hydraulic analysis.

1.3.2.10 Because of the unique characteristics of each watershed in arid regions such as Utah, it would not be appropriate to predict floods from the 460-square mile Rush Valley drainage area by the Rational Method or any method other than historic records at the site. Since there is no history of flooding in Rush Valley, it is expected that the "100-year flood" would be practically insignificant. The TOCDF and ATLIC elevation of 100 to 200 feet above the valley floor puts ~~it~~ them well beyond any expected flood level.

1.3.2.11 For local flooding, conservative "n" values or 0.035 were used to compute flood depths in channels. For bare earth channels, roughness would be lower, producing lower flood depths. In Rush Valley, roughness coefficient estimates were not needed because of the lack of flood potential. There are no bridges or stream channels in the vicinity of the TOCDF or ATLIC for analysis.

1.3.3 **On-site Drainage**

1.3.3.1 The TOCDF occupies approximately 40 acres and is largely covered by a variety of surfaces (i.e., buildings, asphalt, gravel, and concrete paving) such that runoff drains

overland to the west. Runoff ~~from the TOCDF~~ is controlled by the slope of the asphalt and concrete pavement towards storm drains, ditches, and culverts within the TOCDF. All on-site surface runoff is collected in an underground drainage system, which drains to the storm drain detention pond. The site has been carefully graded so that water does not run towards any building and has a generally constant gradient of greater than 1%. The 100-year, 24-hour precipitation is less than 3.3 inches and poses no flood threat to the TOCDF from local ponding. Area 10 drainage is covered by the DCD RCRA Permit.

1.3.3.2 The site access road also acts as a barrier to runoff from the north and east of the site. There is no site run off expected from any other direction. A culvert allows some drainage to flow toward the TOCDF plant site. Approximately 36 cubic feet/second of runoff will flow across the northern end of the TOCDF parallel to the existing exclusion fence. This drainage flows in a culvert where it passes under the security fence, and in an open ditch within the site. All other off-site drainage is diverted around the southern end of the site. The direction of surface water runoff flow is shown by bold arrows on the Topographic Map, TE-16-C-3 (restricted access - protected record).

1.4 TRAFFIC PATTERNS [R315-3-2.5(b)(10)]

1.4.1 General Depot Traffic

1.4.1.1 Access to the DCD is via County Road 198, connecting State Highway 73 to the Main (North) Gate, and via State Highway 73 directly connecting to the Doolittle Road and the East Gate.[22] Both State Highway 73 and County Road 198 are two-lanes, undivided, asphaltic concrete roads zoned from 55 to 65 mph. Neither highway is heavily traveled. The intersections of State Highway 73 and County Road 198 as well as the Doolittle Road with State Highway 73 are simple interchanges. Traffic control at the Highway/Doolittle interchange is via a stop sign on County Road 198. Traffic control at the Doolittle Road/Highway 73 interchange is by a stop sign on Doolittle Road.

1.4.1.2 The DCD West Gate is used at the discretion of DCD and the gate is kept locked. Access to the West Gate is via State Highway 36 onto Harrison Road. State Highway 36 is a two-lane, undivided, asphaltic concrete road. The Highway 36/Harrison Road intersection is a simple interchange with traffic control by a stop sign on Harrison Road.

1.4.1.3 The TOCDF and Area 10 road systems consists of undivided, asphaltic concrete roads. There are no one-way streets, traffic control devices, or signs within the TOCDF or the ATLIC. Entry to the TOCDF and Area 10 is controlled through separate ~~the~~ ECFs located at each facility. All personal vehicles are parked outside of the TOCDF or Area 10 and do not impact the traffic within thosee facilities~~y~~.

1.4.1.4 Generally, all traffic, including government vehicles, commercial carriers, and privately owned vehicles, follow the primary traffic route. Only security vehicles and maintenance vehicles travel off of the primary route.

1.4.1.5 As shown in Drawing TE-16-C-2, the TOCDF is immediately adjacent to and physically connected to Area 10, and therefore, the area becomes a contiguous restricted area. The

[22] See Drawing TE-16-C-2.

ATLIC is within Area 10. Consequently, there is no over-the-road transport of demilitarization items outside of these~~is~~ areas. Internal traffic movement between the storage and the demilitarization operating area is discussed in paragraph 1.4.2.

1.4.1.6 Incinerator residues are disposed of off site at an approved hazardous waste management facility. These materials are properly manifested and handled from the site to the off-site facility by a licensed transporter of such materials. Traffic patterns on site for these materials follow the primary traffic route discussed in paragraph 1.4.1.3 from the facility plants to the depot boundary. Volumes and frequency of shipments are discussed in paragraph 1.4.3.

1.4.2 **Traffic Control**

1.4.2.1 Because of the low volume of traffic at DCD, traffic control measures are simple. Speed is restricted to 30 mph unless otherwise posted (e.g., office areas and parking lots), and 45 mph is posted for most of the primary traffic route. All blind or hazardous turns are marked and posted at reduced speeds. Yield signs and stop signs control traffic at all major intersections. All railroad grade crossings are marked with signs. Traffic control enforcement is by security personnel.

1.4.3 **Estimated Volume and Frequency of Shipments**

1.4.3.1 It is estimated that 500 vehicles will pass the security gate daily. Of the estimated 500 vehicles, 10 to 15 are commercial carriers (semis or truck-trailers) traveling almost exclusively to the TOCDF area. An additional 35 to 40 vehicles (including security and maintenance) travel to other destinations throughout the DCD. ~~As~~T~~the~~ ATLIC is located within Area 10, where the small number of GA and L ton containers to be processed are located, shipments to Area 10 should not increase significantly.

1.4.4 **Road Surfacing and Load Bearing Capacity**

1.4.4.1 Roads, parking areas, and driveways are paved. In general, all main access routes serving the TOCDF and ATLIC areas are of asphalt. The roads have 12-foot-wide lanes with a minimum cross slope of 2 percent and 3-foot-wide dirt/gravel shoulders.

1.4.4.2 The maximum load assumed for design is the American Association of State Highway and Transportation Official's H20 loading:

1.4.4.2.1 18,000 pound axle load,

1.4.4.2.2 32,000 pound maximum axle group,

1.4.4.2.3 80,000 pound maximum vehicle weight.

1.4.5 **Restricted Area Traffic**

1.4.5.1 Total associated two-way traffic on the roads used for the transport of the PAS Brines, DFS and MPF ash, and metal residue from the facility plants to the storage area ranges *between 10 to 28 vehicles per day, depending on the type of munition being processed.* The truck traffic moving munitions between Area 10 and the CHB, and Area 10 and the

ATLIC, varies daily depending on the munition being processed. This estimate does not include traffic associated with Area 10 maintenance, operations, and security, which is estimated at an additional 10 vehicles per day.

LIST OF ACRONYMS	
Acronym	**Definition**
ACS	Agent Collection System
AQS	Agent Quantification System
ATLIC	Area 10 Liquid Incinerator
BRA	Brine Reduction Area
BTU	British Thermal Unit
CAL	Chemical Assessment Laboratory
CAMDS	Chemical Agent Munitions Disposal System
CTC	Cutaway Ton Container
DFS	Deactivation Furnace System
DCD	Deseret Chemical Depot
DSHW	Division of Solid and Hazardous Waste
DVS	Drum Ventilation System
DVSSR	Drum Ventilation Sorting System Room
ECR	Explosive Containment Room
EPA	Environmental Protection Agency
GA	Tabun, Ethyl N,N,-dimethylphosphoro- amidocyanidate
GB	Sarin, Isopropyl methylphosphonofluoridate
GC/MS	Gas Chromatography/mass spectrometry
H/HD/HT	Sulfur Mustard[1]/Distilled Sulfur Mustard/Distilled Mustard with 40% Bis[2-(2-chloroethylthio)-ethyl] ether
HDC	Heated Discharge Conveyor
HEPA	High Efficiency Particulate Air
HRA	Hazard Risk Assessment
L	Lewisite, 2-Chlorovinyl arsinedichloride
LIC	Liquid Incinerator
MDB	Munition Demilitarization Building
mg/m^3	Milligrams per cubic meter
MPF	Metal Parts Furnace
MSB	Monitor Support Building
ONC	On-site Container
PAS	Pollution Abatement System
PFS	PAS Filtration System
PCB	Polychlorinated Biphenyl Compounds
ppb	Parts per billion
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
RHA	Residual Handling Area
SDS	Spent Decontamination System
Subtitle C TSDF	Hazardous Waste Treatment, Storage and Disposal Facility
TC	Toxicity Characteristic or Ton Container
TCLP	Toxic Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TMA	Toxic Maintenance Area
TOCDF	Tooele Chemical Agent Disposal Facility
TSCA	Toxic Substance Control Act
TSDF	Treatment, Storage and Disposal Facility
TSS	Total Suspended Solids
UPA	Unpack Area
UPMC, UMC	Upper Munitions Corridor
VOC	Volatile Organic Concentration (BB/CC)
VX	O-ethyl-S-[2-diisopropylamino)ethyl] methyl phosphonothiolate
WCL	Waste Control Limit

6.6.4.9 The gas then passes through the outer tube of the reflux permeation dryer and into the second head of the pump.

6.6.4.10 The gas sample is then exhausted under positive pressure back to the source.

6.6.5 TOCDF[C2] CERMS Sampling System

The CERMS consist of three components; the NO_x analyzer, the moisture analyzer, and the stack flow meter.

6.6.5.1 NO_X Analyzer Manufacturer: Teledyne API[C1]

1) Model: 200 EH[C1]

2) Measurement Principle: Chemiluminescent Method.

3) Operating Range: 0-1000 ppm

4) Theory of Operation

The M200EH/EM Nitrogen Oxides Analyzer is a microprocessor controlled instrument that determines the concentration of nitric oxide (NO), total nitrogen oxides (NO_x, the sum of NO and NO_2) and nitrogen dioxide (NO_2) in a sample gas drawn through the instrument. It requires that sample and calibration gases are supplied at ambient atmospheric pressure in order to establish a constant gas flow through the reaction cell where the sample gas is exposed to ozone (o_3), initiating a chemical reaction that gives off light (chemiluminescence). The instrument measures the amount of chemiluminescence to determine the amount of NO in the sample gas. A catalytic reactive converter converts any NO_2 in the sample gas to NO, which is then – including the NO in the sample gas – is then reported as NO_x. NO_2 is calculated as the difference between NO_x and NO. Calibration of the instrument is performed in software and usually does not require physical adjustments to the instrument.[C1]

4) Theory of operation

The meter consists of two parts; a measurement section including ultrasonic transducers and holders, and the electronics section necessary to operate the transducers and process data.

5) The measurement section uses two ultrasonic transducers to send ultrasonic pulses back and forth across the diameter of the stack.

6) The electronic section measures the time ultrasonic pulses take to travel the diameter of the stack. Pulses travel faster in the direction of the flow because the flow helps the pulse travel. The upstream and downstream transit times are compared. The difference is proportional to the velocity of the flow in the stack. Corrections are made to the measurement to compensate for temperature and pressure that could affect the speed of the pulse.

6.6.5.4 ATLIC NO_x – The ATLIC NO_x is the same -Teledyne 200EM. Only NO_x ppm will be reported.[C2]

6.6.6 CEMS Rack

6.6.6.1 Sampling Equipment

6.6.6.2 Pre-Insulated Sample Tube Bundle - The sample tubing bundle is electrically heated and contains several Teflon or PFA lines used to transport sample, *calibration, and instrument air between the CEMS* rack and the source. The temperature of the sample tube bundle is regulated by a controller located in the rack for each CEMS system. The controller uses thermocouple feedback to regulate the temperature of the bundle.

6.6.6.3 Stack Probe Assembly - The stack probe assemblies used in the TOCDF program are made up of the following components:

1) Probe

Ceramic or stainless probes are used for sampling. Probes of either material are 1/2" outside diameter (OD). The actual length of the probe depends upon the diameter of the stack or duct. The end of the *probe is cut to a 45 degree angle and is faced* downstream to help avoid collection of particulates.

ACRONYMS AND ABBREVIATIONS

Source: SOP Plan Narrative

ACRONYM	DEFINITION
ACA	Absolute Calibration Audit
ATLIC	Area 10 Liquid Incinerator[C3]
BIF	Boiler and Industrial Furnace
CC	Confidence Coefficient
CD	Calibration Drift
CDRL	Contract Data Requirements List
CE	Calibration Error
CEM	Continuous Emission Monitor
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide[C3]
CO_2	Carbon Dioxide[C3]
DAS	Data Acquisition System
EPA	Environmental Protection Agency
GA	GA Nerve Agent[C3]
L	Lewisite[C3]
LIC	Liquid Incinerator
DFS	Deactivation Furnace System
DUN	Dunnage Incinerator
MPF	Metal Parts Furnace
NO_x	Nitrogen Oxides[C3]
NSPS	New Source Performance Standards
O_2	Oxygen[C3]
PAS	Pollution Abatement System
PC	Personal Computer
PPMV (ppmv)	Parts Per Million Volume
PTM	Performance Test Method
QAPP	Quality Assurance Program Plan
QA/QC	*Quality Assurance/Quality Control*
RA	Relative Accuracy
RATA	Relative Accuracy Test Audit
RM	Reference Method
RT	Response Time[C3]
TSCA	Toxic Substance Control Act
TCEMS	Transportable Continuous Emission Monitoring System
TOCDF	Tooele Chemical Agent Disposal Facility
UDAQ	*Utah Department of Air Quality*
M&TE	Measuring and Test Equipment

1 PROGRAM PLAN DESCRIPTION

1.1 This Quality Assurance Program Plan (QAPP) presents guidelines that the Subcontractor shall follow for all Transportable Continuous Emission Monitoring System (TCEMS) measurements performed for the Continuous Emission Monitoring System (CEMS) certification so the user of the data generated by this project can be assured that data are collected with sufficient detail and documentation to meet the needs of the user.

1.2 This QAPP applies to certification testing and Relative Accuracy Test Audit (RATA) field sampling activities pertaining to the operation of TCEMS for measurement of gaseous air pollutant emissions from the Tooele Chemical Agent Disposal Facility (TOCDF) exhaust vents. It is specific to the requirements of 40 CFR Part 266, Appendix IX; 40 CFR Part 60, Appendix B; and 40 CFR Part 63 Subpart EEE.

1.3 The Monitoring Manager of the TOCDF has prepared two documents that discuss the TOCDF CEMS equipment and operation in detail. Those documents are the Continuous Emissions Monitoring System Plan (CDRL 06) and the Continuous Emissions Monitoring System Laboratory Operating Procedure (TE-LOP-540). This QAPP is not intended to supersede those documents in any way but incorporates them by reference.

1.4 The Environmental Protection Agency (EPA) has defined Quality Assurance (QA) as: an integrated system of activities involving planning, Quality Control (QC), quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality with a stated level of confidence.

C3

1.4.1 There shall be performed and maintained documented evidence of training for all personnel performing work to this scope of work. As a minimum this training shall include:

- This Scope of Work

2.2 The Quality Manager for all QA activities has authority over all personnel and facility resources and therefore has the authority to take corrective action in any QA matter, as required. The Quality Manager will become active in the technical direction of data collection only if it becomes necessary to bring out-of-control programs back under control, and is responsible to ensure that the commitment to QA is continuously active.

2.3 The Quality Manager is responsible to see that QC activities are carried out. The Quality Manager's technical review team reviews all technical reports for accuracy. Technical audits for field measurement activities are under the Quality Manager's supervision. The Quality Manager reports directly to Project Management and is in no way subservient to the technical management.

2.4 The Technical Manager for all TCEMS related programs is responsible to ensure that the QA/QC activities adequately address the technical requirements and objectives and also to ensure that field measurement procedures described in the QAPP are followed.

2.5 The field activities include all aspects of the Performance Specifications certification testing as described in Paragraph 4, Sampling Methods Requirements.

3 TOCDF CEMS DESIGN

3.1 CEMS Description

3.1.1 For more detail regarding the TOCDF CEMS refer to the Continuous Emissions Monitoring System Plan (CDRL 06) and the Continuous Emissions Monitoring System Laboratory Operating Procedure (TE-LOP-540).

3.1.2 All compliance analyzers are to be included in the Performance Specification Test Program. The analyzers are used as compliance monitors and certified spares. Table 3-1 lists the specific analyzers assigned to each furnace system. C3

Table 3-1. Summary of Tooele Chemical Agent Disposal Facility CEMS[C3]

LOCATION	ANALYZER DESCRIPTION	ID NUMBER
Pollution Abatement System Stack	NO_x Analyzer	AIT-076
Pollution Abatement System Stack	NO_x Analyzer	AIT-076B
Deactivation Furnace ID Fan Outlet	O_2 Analyzer	AIT-175
Deactivation Furnace ID Fan Outlet	CO Analyzer	AIT-059
Deactivation Furnace ID Fan Outlet	O_2 Analyzer	AIT-206
Deactivation Furnace ID Fan Outlet	CO Analyzer	AIT-207
Metal Parts Furnace ID Fan Outlet	O_2 Analyzer	AIT-082
Metal Parts Furnace ID Fan Outlet	CO Analyzer	AIT-384
Metal Parts Furnace ID Fan Outlet	O_2 Analyzer	AIT-670
Metal Parts Furnace ID Fan Outlet	CO Analyzer	AIT-669
Liquid Incinerator 1 Furnace ID Fan Outlet	O_2 Analyzer	AIT-229
Liquid Incinerator 1 Furnace ID Fan Outlet	CO Analyzer	AIT-083
Liquid Incinerator 1 Furnace ID Fan Outlet	O_2 Analyzer	AIT-210
Liquid Incinerator 1 Furnace ID Fan Outlet	CO Analyzer	AIT-078
Liquid Incinerator 2 Furnace ID Fan Outlet	O_2 Analyzer	AIT-798
Liquid Incinerator 2 Furnace ID Fan Outlet	CO Analyzer	AIT-778
Liquid Incinerator 2 Furnace ID Fan Outlet	O_2 Analyzer	AIT-717
Liquid Incinerator 2 Furnace ID Fan Outlet	CO Analyzer	AIT-716
Spares	O_2 Analyzer	AIT-1001
	CO Analyzer	AIT-1000
	O_2 Analyzer	AIT-1003
	CO Analyzer	AIT-1002
	NO_x Analyzer	AIT-9077
GA/L Stack	O_2 Analyzer	AIT-8301
GA/L Stack	CO Analyzer	AIT-8302
GA/L Stack	NO_x Analyzer	AIT-8304

3.1.3 The TOCDF CEMS analyzer manufacturers, models, and operating ranges are shown in Table 3-2. All of the TOCDF CEMS measure or correct the gas concentrations on a dry gas basis.

Table 3-2. TOCDF Analyzer Descriptions[C3]

Parameter	Manufacturer	Model	Range
CO	Teledyne API	300EM	0-200,5000 ppm
CO	Teledyne API	300EM/O_2 Option	0-200,5000 ppm
O_2	Thermox	FCA-micro	0-25 %
NO_x	Teledyne ~~API~~	200EH	0-1000 ppm
O_2	Servomex	1158 pm	0-25 %

3.2 TCEMS Description

3.2.1 The TCEMS used to perform the RATA include two distinct types of Reference Method (RM) measurement systems: direct non-diluting *measurement using an extractive system and measurement of an*

in-stack diluted gas sample. The non-diluting extractive system is suitable for direct measurement of O_2,[C3] CO, oxides of nitrogen (NO_X), ~~total hydrocarbons,~~[C3] and other gaseous constituents using source-level instrumental techniques. The in-stack dilution system is suitable for measuring all the above constituents except for O_2 and CO_2, and it employs ambient-level analyzers. The primary system to be used for the TOCDF RATA will be the non-diluting extractive system. The dilution system will may be used for RATAs as a backup system should problems arise with use of the primary system.

3.2.2 The TCEMS includes the sample extraction, transport, conditioning, measurement analyzers, and Data Acquisition Systems (DAS). For test locations where high stack gas temperatures exist, appropriate probe materials (such as quartz or inconel) will be used. Brief descriptions of the two types of systems are provided below.

3.2.2.1 Non-Diluting Extractive System – A sample is extracted from the test location through the stainless steel sample probe. The sample is drawn through a heated sample line. The line contains two separate channels; one for sample extraction, and one for delivery of calibration gases to the probe for determination of system bias. If particulate matter interference is an issue at the source, the sample flows through a heated filter at the outlet of the sample line; if particulate matter is not an issue, the heated filter is bypassed. The sample then passes through a heated sample pump, and is forced by the pump into the condenser unit where moisture is removed. From the condenser unit, the sample passes through a silica gel trap to further remove moisture, and then is routed into a sample manifold, where pressure is regulated, and separate rotameters control flow to each of the analyzers in the measurement system. The analyzers output a signal to a scientific data logger, which processes and records the data from each of the analyzers. The data is then transferred to Person Computer (PC), via an Ethernet connection, or by removing the storage device (flash card) from the data logger, and transferring the data directly from the storage device onto the PC.

4.6.3 The overall approach for the RATA is to operate a single TCEMS. Only one extraction point will be tested at a time. C3

4.6.4 A minimum of 9 and a maximum of 12 tests are required for the RA tests. Data will be recorded on a standard form. The TOCDF CEMS data are reported on a dry basis. Therefore, RA test measurements will be made on a dry basis.

4.6.5 All RA test calibration gases will be Protocol 1 gases. The measurement ranges for the Subcontractor's TCEMS used for the PTM will be matched to the CEMS being certified. The RM analyzer ranges and the required Protocol 1 gases are shown in Table 4-3.

4.6.6 Interference checks will be performed according to the specific RM on all RM analyzers prior to their initial use at TOCDF. C3

4.6.7 RM calibrations (including a zero and two point span check) for the TCEMS will be performed prior to the first of each set of 9 to 12 CEMS RATA tests. Each calibration gas will be introduced as near to the probe inlet as possible so the entire TCEMS is calibrated. After each RA test, a system bias check will be performed to validate the data from the previous test, IAW 40 CFR, pt 60, App. A, Method 6C.

4.6.8 If problems are identified by the bias check, the previous test will be voided and repeated after corrections to the system are made. Problems that require corrections to the system and result in a voided test automatically trigger the need for a complete system calibration before testing is resumed.

4.6.9 Reports of the CEMS data will be obtained from EG&G for each RATA. PTM and CEMS data for each test run will be entered into a spreadsheet so the preliminary results can be evaluated. The preliminary results, including the individual test differences and arithmetic mean of the differences, standard deviation, confidence coefficient, and the relative accuracy, are to be reported to EG&G at the end of each test day.

4.7 Stratification Test for the MPF Analyzers

Stratification is defined in 40 CFR 266 as a difference of 10% or more between the average concentration in the duct and "the concentration at any point more than 1.0 meter from the duct or stack wall". For the purposes of this program stratification will be a difference of greater than 10% between the average concentration at the centroid (CEM measurement location) and the average of the RM test points. This test has been completed for the applicable location.

Table 4-1. Zero and Certified Calibration Gas Requirements for Calibration, Calibration Drift, and Response Time Tests

Analyzer Percent of Range	CO 0-200 ppmv	CO 0-5000 ppmv	O_2 0-25 %	NO_x 0-1000 ppmv
0-20	Nitrogen	Nitrogen	0-2.5	Nitrogen
60-90	120-180	3000-4500	15-22.5	600-900

Table 4-2. Acceptable Concentrations for CEMS Quarterly Audits (ACA/Cylinder Gas Audits)

ANALYZER TYPE	LOW GAS RANGE	MID GAS RANGE	HIGH GAS RANGE
CO Range 1 CO Range 2	0-40 ppm 0-600 ppm	60-80 ppm 500-2000 ppm	140-160 ppm 3500-4000 ppm
O_2	0-2.0[C1] %	8-10 %	14-16 %
NO_x	200-300 ppm	NA	500-600 ppm

CALIBRATION SPAN GAS MUST BE 50-90 % FULL SCALE SPAN

Table 4-3. Zero and Protocol 1 Gas Requirements for Performance Test Method (PTM) Analyzer Operation

Analyzer Percent of Range	CO 0-200 ppmv	CO 0-5000 ppmv	O_2 0-25 %	CO_2 0-20 %	NO_x 0-1000 ppmv
0-0.25	Nitrogen	Nitrogen	0-2.5%	Nitrogen	Nitrogen
40-60	80-120	2000-3000	10-15	8-12	400-600
80-100	160-200	4000-5000	20-25	16-20	800-1000

C3

STA #	ACAMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
PAS 706EV	N/A	363	MON HOUSE 75-461 06-ID-28-003-1-D3	COMMON STACK RM 75-461	UPS	N/A	SEL	N/A	16'	ACAMS CONFIRM	NOTE 4 & 17
PAS 707AH	432	N/A	MON HOUSE 75-461 06-ID-28-003-1-D3	COMMON STACK RM 75-461	UPS	N/A	SEL	0.2	35'	N/A	ALTERNATING CYCLES w/707B or 707C
PAS 707BH	433	N/A	MON HOUSE 75-461 06-ID-28-003-1-D3	COMMON STACK RM 75-461	UPS	N/A	SEL	0.2	35'	N/A	ALTERNATING CYCLES w/707A or 707C
PAS 707CH	434	N/A	MON HOUSE 75-461 06-ID-28-003-1-D3	COMMON STACK RM 75-461	UPS	N/A	SEL	0.2	35'	N/A	STANDBY FOR 707A AND 707B
PAS 707DH	N/A	577	MON HOUSE 75-461 06-ID-28-003-1-D3	COMMON STACK RM 75-461	UPS	N/A	SEL	N/A	23'	ACAMS CONFIRM	
PAS 707EH	N/A	578	MON HOUSE 75-461 06-ID-28-003-1-D3	COMMON STACK RM 75-461	UPS	N/A	SEL	N/A	23'	ACAMS CONFIRM	NOTES 4 & 6
MED 904AL	101 (MINI-CAMS)	N/A	MEDICAL MONITORING SHED 14-ID-28-008	MEDICAL DECON RM 102-143	UPS	C	VSL	0.40	100'	N/A	NOTE 26
MED 904BL	102 (MINI-CAMS)	N/A	MEDICAL MONITORING SHED 14-ID-28-008	MEDICAL VESTIBULE RM 102-144	UPS	C	VSL	0.40	100'	N/A	NOTE 26
MED 904CL	103 (MINI-CAMS)	N/A	MEDICAL MONITORING SHED 14-ID-28-008	MEDICAL DECON RM 102-143	UPS	C	VSL	0.40	100'	N/A	NOTE 26 BACKUP TO MED 904AL
MED 904DL	104 (MINI-CAMS)	N/A	MEDICAL MONITORING SHED 14-ID-28-008	MEDICAL VESTIBULE RM 102-144	UPS	C	VSL	0.40	100'	N/A	NOTE 26 BACKUP TO MED 904BL
MED 904 H	399	453	MEDICAL ROOM 102-136 14-ID-28-008-1-C4	MEDICAL RM 102-136	UPS	C	VSL	0.5	10'	ACAMS CONFIRM	NOTE 9
MED 904K	105 (MINI-CAMS)	N/A	MEDICAL MONITORING SHED 14-ID-28-008	MEDICAL RMS 102-136, 102-143 and 102-144	UPS	C	VSL / WPL	0.50	100'	ACAMS CONFIRM OR HISTORICAL	NOTE 9

campaigns until the Area 10 Igloo Carbon Filtration System carbon has been replaced.

24. When spooled, the DAAMS will follow the location monitored by the ACAMS for Area 10 monitors.
25. These stations are monitoring to Extended Range VSL parameters.
26. For Lewisite monitoring, a second MINICAMS with a different type column will be used for alarm confirmation.

Hazard Level:

STEL	Short Term Exposure Limit
SEL	Source Emission Limit.
WPL	Worker Population Limit
ECL	Engineering Control Level
IDLH	Immediately Dangerous to Life and Health
VSL	Vapor Screening Limit

See AR 385-61 for a complete definition of the Hazard Level designations

TOOELE CHEMICAL AGENT DISPOSAL FACILITY

(TOCDF)

ATTACHMENT 22 A

ATLIC

AGENT MONITORING PLAN

REV 2

95% DESIGN FINAL

December 18, 2009

2	Dec 2009	95% Design Final; Government comments incorporated	JR	CTS	
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REV.	DATE	REASON FOR REVISION	BY	CHECK	EGS

	Area 10 Liquid Incinerator Project	Specification No.	
			Rev.
			2

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REFERENCES

Drawings of Air Monitoring Locations:

EG-22A-G-1000, Sheet 1 thru 6 Title: Instrument Locations Plans-General Arrangement-MINICAMS/ACAMS/DAAMS
ACAMS/DAAMS Heated Sample Line Assembly Drawing

Probe Assembly Drawings:

EG-22A-I-1002 1 Interior Sample Probe Assy. GA DAAMS only or ACAMS only
EG-22A-I-1003 1 Interior Sample Probe Assy. Lewisite DAAMS only
EG-22A-I-1004 1 Interior Sample Probe Assy, ACAMS w/ DAAMS
EG-22A-I-1005 1 Interior Sample Probe Assy. ACAMS W/Stream Selector (Glove Box)
EG-22A-I-1006 1 Interior Sample Probe Assy, MINICAMS W/Stream Selector (Glove Box)
EG-22A-I-1007 1 Interior Sample Probe Assy, MINICAMS Only
EG-22A-I-1008 1 Interior Sample Probe Assy, MINICAMS (Exhaust Stack)
EG-22A-I-1009 1 Exterior Sample Probe Assy, MINICAMS (Filter Stack)
EG-22A-I-1010 1 Exterior Sample Probe Assy. ACAMS/DAAMS (Filter Stack)
EG-22A-I-1011 1 Exterior Sample Probe Assy, ACAMS/ w/Stream Selector, (Filter Bank)
EG-22A-I-1012 1 Exterior Sample Probe Assy, Dual DAAMS (Filter Bank)
EG-22A-I-1013 4 IGLOO Monitoring Room Sample Probe Assemblies
EG-22A-I-1014 1 Interior Sample Probe Assy. Dual MINICAMS Only
EG-22A-I-1015 1 Exterior Sample Probe Assy, MINICAMS/DAAMS/Stream Selector (Filter Bank)
EG-22A-I-1016 1 Exterior Sample Probe Assy, Dual MINICAMS (Filter Stack)
EG-22A-I-1017 1 Interior Sample Probe Assy. ACAMS only
EG-22A-I-1018 1 Interior Sample Probe Assy. MINICAMS only

Exhaust Stack Penetration Drawings:

EG-22A-S-1036, Sheet 1 thru 5, Exhaust Stack Penetrations

APPENDICES

A Agent Monitoring Plan Details

LIST OF ACRONYMS AND TERMINOLOGY

Acronyms

ACAMS ..... Automatic Continuous Air Monitoring System
AEL ..... Airborne Exposure Limit
AL ..... Alarm Level
A/L ..... Airlock
AMP ..... Agent Monitoring Plan
ATLIC ..... Area 10 Liquid Incinerator
AWFCO ..... Automatic Waste Feed Cutoff
CAL ..... Chemical Assessment Laboratory
CAMDS ..... Chemical Agent Munitions Disposal System
CDC ..... Centers for Disease Control and Prevention, Dept of Health and Human Services
CDRL ..... *Contract Data Requirements List*
CFR ..... Code of Federal Regulations
CMA ..... Chemical Materials Agency
CON ..... Control Room
COR ..... Corridor
CPA ..... Conversion Pad Assembly
CWM ..... Chemical Warfare material
DAAMS ..... Depot Area Air Monitoring System
DCD ..... Deseret Chemical Depot
DPE ..... Demilitarization Protective Ensemble
ECL ..... Engineering Control Level
GA ..... Nerve Agent GA, Tabun
GC/FPD ..... Gas Chromatograph / Flame Photometric Detector
GC/MSD ..... Gas Chromatograph / Mass Spectrometer Detector
GFP ..... Government Furnished Property
GPL ..... General Population Limit
HIST ..... Historical
HVAC ..... Heating, Ventilation, and Air Conditioning
IDLH ..... Immediately Dangerous to Life or Health
L ..... Lewisite
LCO ..... Limiting Condition of Operation
LOP ..... Laboratory Operating Procedure
LMQAP ..... Laboratory and Monitoring Quality Assurance Plan
LQCP ..... Laboratory Quality Control Plan, TOCDF Site Plan
LVS ..... Low-Volume Sampler
MCP ..... Monitoring Concept Plan
MINICAMS® ... Miniature Continuous Air Monitoring System
MSB ..... Monitor Support Building
MSD ..... Mass Spectroscopy Detection
NRT ..... Near Real-Time
OBS ..... Observation Corridor
ORR ..... Operational Readiness Review
P&A ..... Precision and Accuracy
PAS ..... Pollution Abatement System
PPE ..... *Personnel Protective Equipment*
QA ..... Quality Assurance
QC ..... Quality Control

QM..... Quality Management
QP..... Field Quality Control Samples
RCRA..... Resource Conservation and Recovery Act
RDTE..... Research Development Test and Evaluation
RL..... Reporting Limit
RTAP..... Real Time Analytical Platform
SAF..... Site Analytical Facility
SEL..... Source Emission Limit
SOP..... Standard Operating Procedure
SPS..... Secondary Power (Distribution) System
STEL..... Short-Term Exposure Limit
TOCDF..... Tooele Chemical Agent Disposal Facility
UPS..... Uninterruptible Power Supply
VOC..... Volatile Organic Compound
VSL..... Vapor Screening Limit
WAP..... Waste Analysis Plan
WPL..... Worker Population Limit
Z..... A generic designation of an applicable monitoring level such as STEL, WPL, VSL, GPL or SEL.

Terminology

Action Level - A pre-determined set point that triggers a specified action.

AEL: Airborne exposure limit is the allowable concentration in the air for workplace and general population exposures. AELs include worker population limits (WPLs), short-term exposure limits (STELs), Vapor Screening Limit (VSL), immediately dangerous to life or health values (IDLHs), and general population limits (GPLs).

Alarm Level (AL): Alarm Level at which the ACAMS or MINICAMS (Near-Real Time) monitor will alarm to alert personnel of a potential upset conditions. All sampling and analytical monitors must, at a minimum, measure within ±25% of the true concentration 95% of the time. Alarm levels are defined in Attachment 22A, Appendix A.

Baseline (Initial): Before each individual agent campaign the monitoring system is operated in the configuration in which it will be used during the campaign. This is known as baseline operations. The purpose for the baseline is to provide evidence that the whole system will perform within required tolerances and requirements, and to document the configuration of the system at the time of the baseline. Once a system is baselined, the configuration of the system must not be changed (within limits) or the baseline has been changed and a new baseline must be performed.

Category A Area: The toxic processing area supported by the cascade ventilation system designated for probable liquid and vapor agent contamination (for example, TOX area, LIC room).

Category B Area: The toxic processing area supported by the cascade ventilation system designated for possible vapor agent contamination only.

Category C Area: The nontoxic work area adjacent to Category A or B areas that is supported by the cascade ventilation system designated for possible low-level vapor agent contamination (for example, observation corridors).

Category D Area: The nontoxic work area designation for areas considered uncontaminated.

Category E Area: The area designated for a positive pressure, filtered air environment (for example, Control Room).

Distal End: Location where the air sample enters into the sampling system.

ECL: Engineering Control Level (ECL) is used to indicate that the sensitivity of the ACAMS or MINICAMS at this location has been changed to provide representative readings in agent contaminated areas that are higher than the VSL and lower than IDLH monitoring.

Engineering Control or Under Engineering Control: When the environment in a room or area is under negative atmospheric pressure and the evacuated air is processed to remove contamination, the area or room is considered to be "under engineering control." An example is a munitions processing room that is expected to be contaminated with agent. The room is maintained under negative pressure to prevent agent leakage out of the room. The air that is evacuated from the room is filtered through carbon to remove the agent.

GA: Nerve agent GA (Tabun).

GPL: General Population Limit: The allowable time-weighted average concentration for the general population that represents the maximum concentration to which the general population may be exposed 24 hours per day, 7 days a week, for a 70-year lifetime. The limit applies to the entire population, including all ages and medical conditions. For G-agents, the GPL is 1×10^{-6} mg/m^3 as a 24 hour TWA. For L, the GPL *is 3×10^{-1} mg/m^3 as a 72 hour TWA.*

IDLH: Immediately Dangerous to Life or Health (IDLH): The maximum concentration from which, in the event of a respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape impairing (for example, severe eye irritation) or irreversible health effects. IDLH levels are 0.1mg/m^3 for G-agents. For L, 0.36 mg/m^3.

Interferent: An interferent is a chemical compound that will cause an Automatic Continuous Air Monitoring System (ACAMS), Miniature Continuous Air Monitoring System (MINICAMS), Depot Area Air Monitoring System (DAAMS) to false alarm or malfunction in such a way that they could not detect agent. There are some interferents that mask agent so it is not detectable, including some paints, lubricants, and even some foods. The DAAMS analysis is better at discriminating between agent and an interferent than the ACAMS and/or MINICAMS. For this reason, DAAMS are paired with ACAMS at many locations for the purpose of confirming or denying alarms.

L: Lewisite, or (chlorovinyl dichloroarsine).

Neat Agent: Neat agent is agent that has not been diluted since manufacture or preparation. It may not be "pure" but it is as manufactured. Once it is diluted, it is no longer considered neat.

QP: Quality Plant sample: The quantitative result obtained from challenging an ACAMS/MINICAMS/DAAMS or sample line with a solution prepared at a known concentration.

RDTE Dilute Solutions: RDTE Dilute Solutions are solutions of chemical agent in concentrations and quantities reduced by admixture (dilution) to levels that can be handled with the same precautions associated with hazardous industrial chemicals (acids, bases, or solvents), and are defined by the agent concentration and by the quantity in a single container. They are as follows:

Agent	Maximum Total Quantity	Maximum Concentration
G-agents	20.0 mg	2.0 mg/ml
Lewisite	50.0 mg	5.0 mg/ml

SEL: Source Emission Limit. SEL is a ceiling value that serves as a source emission limit, and not as a health standard. It is used for monitoring the exhaust stack. The SEL provides an early indication of upset conditions, and must be accurately measurable in a timely manner. Modeling of worst –case credible conditions at each installation must confirm that the general population limit (GPL) monitoring level is not exceeded at the installation boundary as a consequence of releases at or below the SEL. The SEL value for G-agents is 0.0003 mg/m^3 and, for L is 0.03 mg/m^3. It is not expected to use a dilution control device for analysis of the exhaust gas , as the gas will be cooled to 40°F after leaving the scrubber to remove moisture, and then reheated to ~200°F.

STEL: Short Term Exposure Limit is the maximum concentration to which unprotected chemical workers may be exposed to for up to 15 minutes continuously. For G-agents, the STEL is 1 x 10^{-4} mg/m^3 four times daily. For L, the STEL is 3 x 10^{-3} mg/m^3, one time daily.

STEL Concentration: A concentration equivalent to the STEL value but without time weighting (i.e., a one-cycle reading of a Near-Real Time monitor).

VSL: Vapor Screening Limit. A vapor concentration term that is independent of time. It may be used to define the level to which an item is monitored to determine the agent contamination level, or alternately, the readout of an NRT monitor. For G-agents, the VSL is 1 x 10^{-4} mg/m^3. For L, the VSL is 3 x 10^{-3} mg/m^3.

WPL: Worker Population Limits. The average allowable concentration that an unmasked worker could be exposed to for an 8 to 12 hour workday 40 hours per week for 30 years without adverse effects. The WPL for GA/L has been adjusted to reflect a 12-hour work shift. The 12-hour WPL for G-agents is 2 x 10^{-5} mg/m^3, and L is 3 x 10^{-3} mg/m^3.

Z: A generic designation of an applicable monitoring level such as STEL, WPL, VSL, GPL or SEL.

AGENT MONITORING PLAN

22A.1 INTRODUCTION

The ATLIC will use a Liquid Incinerator system (LIC) that disposes chemical agents GA, Lewisite and Spent Decontamination Solution (SDS) through high-temperature incineration. Unlike TOCDF, it is not expected to use a dilution control device for analysis of the exhaust gas, as the gas will be cooled to 40°F after leaving the scrubber to remove moisture, and then reheated to ~200°F. Filter bank monitoring will be performed by sequencing Near Real Time Monitors (NRT) through the Mid-bed One position. DAAMS monitoring will be performed at the Mid-bed One and Two positions. For GA monitoring, ACAMS will be used with co-located DAAMS for confirmation and historical analyses where called for. Silver fluoride pads or V to G pads will be placed in the sample stream for GA ACAMS and DAAMS to cause a reaction that results in a species with a narrower chromatographic peak. For Lewisite, MINICAMS will be used for NRT and confirmation monitoring. A supply of 1, 2-ethanedithiol (EDT) will be used for Lewisite monitoring with a MINICAMS. The EDT will be introduced to the distal end of the sample line to react with the Lewisite to form a derivative that is more stable and transportable.

22A.2 POLICY/GOALS OF MONITORING OPERATIONS

22A.2.1 Purpose

22A.2.1.1 *This Monitoring Plan contains monitoring requirements for GA and Lewisite, bulk* processing, and provides identification of monitoring devices and sampling locations. The monitors are used to provide agent detection and measurement to aid in providing worker and general population protection, and to indicate ATLIC operations are in control. ACAMS will be used to monitor for GA agent and MINICAMS will be used to monitor for L.

This plan reflects the monitoring for each processing area when it is being used for agent work. When agent work in a given area is suspended, the monitoring for that area may be suspended as stated in Paragraphs 22A.16.6, 22A.19.1 or 22A.20. Before campaigns other than those listed above commence, a revised monitoring plan shall be developed.

22A.2.1.2 The primary purpose of Monitoring is to have near real-time and historical analytical data to limit/prevent and document exposure of personnel to chemical warfare agents and protect the environment from the introduction of agents. Agent monitoring is also performed for process control purposes to identify upset conditions in the processes and to measure agent concentrations in toxic areas which allow management to make decisions on protective clothing requirements for entries into toxic areas.

22A.2.2 Perimeter Monitoring

22A.2.2.1 Monitoring of the perimeter of the Deseret Chemical Depot (DCD) is conducted by Deseret Chemical Depot (DCD) personnel. Perimeter monitoring provides evidence and documents whether there is any chemical agent migration outside of DCD.

22A.2.3 ATLIC Station Numbering and Locations

22A.2.3.1 This Monitoring Plan provides a table of locations and station numbers (Appendix A) for agent monitors associated with ATLIC.

22A.2.4 Summarized Requirements

22A.2.4.1 Monitoring Operations monitors for GA and Lewisite bulk containers, processing and *secondary waste. There are three configurations that monitor for GA employed at ATLIC:* ACAMS only, ACAMS with co-located DAAMS, and DAAMS only. ACAMS -only stations primarily are used in toxic areas to provide information to management for protective clothing determination for entries into toxic areas. ACAMS with co-located

DAAMS serve two purposes: 1) the ACAMS is the primary monitor, which quantifies the amount of agent present. Concurrently, ACAMS provide an early warning system to facility personnel of a potential agent release at or above the alarm set points in Attachment 22, Appendix A. The co-located DAAMS are used to confirm or deny the presence of agent. 2) DAAMS tubes are also analyzed from these stations on a monthly rotational basis to monitor areas at the WPL. Responses to ACAMS alarms are IAW Section 22A.31.

22A.2.4.2 There are four configurations that monitor for L employed at the ATLIC: MINICAMS only; MINICAMS with co-located DAAMS; MINICAMS with co-located MINICAMS; and DAAMS only. MINICAMS -only stations primarily are used in toxic areas to provide information to management for protective clothing determination for entries into toxic areas. MINICAMS with co-located DAAMS - the DAAMS from these stations are analyzed on a monthly rotational basis to monitor areas at the WPL. MINICAMS with co-located MINICAMS - these co-located MINICAMS are used to confirm or deny the presence of agent. The co-located MINICAMS used for confirmation will be fitted with a different GC column than that used by the primary MINICAMS. Responses to MINICAMS alarms are IAW Section 22A.31.

22A.2.4.3 DAAMS-only stations for GA and L are used for historical purposes to monitor areas at the WPL. The DAAMS historical tubes are not connected to an alarm. Historical DAAMS are located in areas not expecting to have agent.

22A.3 RESPONSIBILITIES

22A.3.1 The Monitoring group supports the ATLIC by operating and maintaining monitoring equipment and routinely collecting liquid and solid samples in and around the ATLIC. Monitoring personnel may designate the sampling duties to a trained sample technician. The Monitoring Department utilizes a variety of monitoring equipment. Much of the equipment is Government Furnished Property (GFP), which is augmented by equipment, and supplies that are obtained from commercial vendors. Liquid and solid samples will be delivered to the Chemical Assessment Laboratory (CAL) or Site Analytical Facility (SAF) for analysis. The analytical department personnel are responsible for performing the analysis or transferring the samples requiring analysis to a Utah certified subcontractor laboratory. Laboratory Quality Control personnel are responsible for inspecting and auditing all Laboratory (analytical and monitoring) operations.

22A.4 COORDINATION

There are several levels of coordination performed by the Monitoring Department. Other than normal working relationships within the ATLIC and at the CAL or SAF, there are three supervisory levels.

22A.4.1 Monitoring Manager

22A.4.1.1 The Monitoring Manager coordinates additions or deletions to the workload such as new sampling or monitoring requirements. S/he will be the control point for any changes in monitoring or sampling parameters such as changes of sampling times or sample flows.

22A.4.2 Monitoring Operations Supervisor

22A.4.2.1 The Monitoring Operations Supervisor works directly for the Monitoring Manager and coordinates the work load with the Team Leaders of all shifts. The supervisor will coordinate the timing of special monitoring and sampling operations with the Operations Supervisor and Facility Shift Manager.

22A.4.3 Monitoring Team Leader

22A.4.3.1 The Monitoring Team Leader for each shift will coordinate the timing of routine monitoring and sampling operations with the Control Center personnel. This coordination is specified in the applicable Laboratory Operating Procedures (LOPs). The Team Leader or designated certified monitoring technician and at least one team member will respond to all ACAMS and/or MINICAMS alarms in accordance with approved monitoring procedures and will be in direct contact with the Control Center.

22A.5 OBJECTIVES OF THE MONITORING PLAN

22A.5.1 The Monitoring Plan provides identification of monitoring devices and sampling locations. The monitors are used to provide agent detection and measurements to aid in providing worker and general protection, and to indicate facility operations are in control.

22A.6 AGENT MONITORING ACTIVITIES

22A.6.1 Monitoring activities are structured to support toxic operations. Maintenance and QC activities for ACAMS and/or MINICAMS are scheduled during times that do not interfere with operations. This is done by obtaining permission from the Control Center before any monitor or sampling device is taken out of service. The DAAMS for GA and MINICAMS for L is used for the collection of samples of agent for confirmation of ACAMS for GA and MINICAMS for L alarms. DAAMS are the primary monitoring in areas not monitored with ACAMS or MINICAMS. The monitors listed in the Appendices must be operational when performing the operations they support except when off-line for challenging and corrective actions, as documented in approved procedures or if monitoring has been suspended in accordance with this plan.

22A.7 ATLIC MONITORING ACTIVITIES

22A.7.1 In the demilitarization area, hazard category classifications and personnel occupancy are the factors used to determine monitoring activities. When monitoring is conducted for personnel protection or to assess potential personnel exposure it must be sufficient to identify, verify, and quantify the agent. VSL and WPL monitoring is performed in areas where workers may have a potential exposure to chemical warfare agent. Selected "C" hazard category areas of the facility have WPL monitoring conducted on a daily basis for all work areas where chemical agent is present without secondary vapor containment and workers are not required to wear respirator protection, while other "C" hazard category areas have WPL monitoring conducted on a monthly basis in accordance with this plan.

22A.8 CATEGORIES OF ATLIC AREAS

22A.8.1 Toxic and Process Areas

22A.8.1.1 These areas are potentially contaminated as a result of the presence of uncontained liquid agent or agent vapor. This area is monitored using an ACAMS and/or MINICAMS. The agent concentrations determine the Personnel Protective Equipment (PPE) that is required for personnel entry. At times, the monitoring may be enhanced to allow the PPE for specific toxic areas to be reduced to enhance worker mobility. This requires Safety Manager/Designee or Temporary Change approval. This could include changing the ACAMS and/or MINICAMS to a more sensitive detection level or adding DAAMS in order to confirm or deny an ACAMS alarm or MINICAMS to confirm or deny the primary MINICAMS alarm. Toxic Area ACAMS and/or MINICAMS are used to quantify potential exposure of personnel.

22A.8.2 Toxic Process Area Airlocks

22A.8.2.1 Airlocks serve as access/egress points between contaminated areas and clean work areas. To limit the transfer of agent from "toxic" areas to "work areas", under normal conditions, items and personnel are cleared through an airlock. Procedures govern egress through airlocks to prevent items or personnel from exiting toxic areas until they have been monitored by an ACAMS and/or MINICAMS. Agent readings must be less than the level set by egress procedures to clear items and personnel from the airlock.

22A.8.3 Outside of Toxic Process Areas

22A.8.3.1 The Processing Bay is an area where agent vapor is not normally expected, but a potential exists for low-level vapor contamination. This area is considered as "under engineering control" and is monitored at the VSL and WPL level daily.

22A.8.3.2 The Observation corridor is considered to be "under engineering controls" and is monitored at the VSL daily and at the WPL level at least monthly.

22A.8.4 Work Areas

22A.8.4.1 At the ATLIC, there are many work areas where toxic operations are not conducted. These areas are not "under engineering control" and have little or no potential for vapor contamination. These areas are not monitored for agent. Examples of work areas include the Generator Room, Central Decon Room, and Acid Feed supply building.

22A.8.5 ATLIC Support Areas

22A.8.5.1 The Control Center, and Entry Support areas require WPL monitoring. This is a safety requirement to verify that workers have not carried contamination into these areas.

22A.9 FILTER MONITORING

22A.9.1 Multiple Bank Carbon Filter units provide negative pressure ventilation for potentially contaminated areas throughout the enclosure. A description of the ATLIC ventilation carbon filters is located in Attachment 5 (Inspection Plan). Filter monitoring is performed at the VSL and WPL levels in order to detect evidence of filter degradation in order to allow changing of the filter media before there is a possibility of an agent leak to the atmosphere.

22A.9.1.1 The ATLIC filter stack shall be monitored with ACAMS and/or MINICAMS and DAAMS for any agents being processed in the furnace. Additionally, on the Filter stack, only DAAMS tubes shall be required to monitor for agents from past campaigns, if the contaminated charcoal has been removed after the completion date of the campaign. If the first two filters are not changed out after an agent campaign, then the Filter stack shall be monitored with ACAMS and/or MINICAMS and DAAMS for agents from these past campaigns. Filter stack DAAMS samples, shall be collected and analyzed every 12 hours. In addition, Filter Stack DAAMS tubes shall be collected and analyzed if an associated ACAMS goes into an alarm. MINICAMS (with a different column) confirmation will be used for L.

22A.9.1.2 The ATLIC filter mid-bed locations shall be monitored continuously with DAAMS for any agents being processed (filter online or offline). Filter mid-bed locations will be monitored using single point sampling. Sample stream switches shall be used to cycle an ACAMS and/or MINICAMS around the three filters at the mid-bed 1 position (between the first and second beds), for any agents being processed (filter online or offline). Locations of the mid-bed ACAMS and/or MINICAMS and DAAMS tubes are specified in Attachment 22A, Appendix A. DAAMS tubes monitoring the mid-bed shall be analyzed daily and if the mid-bed ACAMS goes into alarm. MINICAMS confirmation for L will be used in place of DAAMS.

22A.9.1.3 The SAF Laboratory filter stack shall be monitored with DAAMS for any agents in use. The tubes shall be collected and analyzed every 12 hours.

22A.9.1.4 The SAF Laboratory DAAMS tubes, located in the mid-beds (Attachment 29), shall monitor for any agent in use and shall be analyzed daily.

22A.9.2 If a confirmed ACAMS and/or MINICAMS agent reading on the mid-beds reaches 3 VSL for any agent being monitored, the change-out of the filters shall commence as specified in Module X. Exception to this is after the first mid-bed. If agent readings confirm the presence of agent between the first mid-bed and second mid-bed, monitoring will be discontinued in this location and the ACAMS and/or MINICAMS will be relocated between the second mid-bed and third mid-bed

22A.10 SAMPLING PARAMETERS

22A.10.1 The operational control limits for sampling parameters such as sample flow rate and duration of sample time are under configuration control and documented in precision and accuracy studies before "Base Line" monitoring is performed and can only be changed by the Monitoring Manager following approved procedures.

22A.11 DATA HANDLING

22A.11.1 Monitoring parameters, such as flow rates and sample collection start and end times are recorded and accompany the sample to the laboratory. Comments pertaining to equipment malfunction (such as failure to sequence) are currently recorded in logbooks at each station. Sample problems are also annotated with pertinent information. This information is used to identify the need for corrective action to prevent recurring deficiencies. The corrective action may consist of such things as additional training or changing the types of preventive maintenance for particular types of equipment. All raw data from ACAMS and MINICAMS, including calibrations and challenges, (except as noted in the Table in Appendix A) are gathered on the Facility Control System in the Control Center and maintained in a database. The ACAMS and MINICAMS strip-chart is used to evaluate agent concentration and alarm cycle time.

22A.12 QUALITY CONTROL

22A.12.1 ATLIC QM (Quality Management) Program

22A.12.1.1 Confidence in sampling methods that characterize actual ambient concentrations of agent in a given matrix is of utmost importance. An extensive QA Program is required to ensure the quality of monitoring data is adequate for its intended use. The programmatic Laboratory and Monitoring Quality Assurance Plan (LMQAP) and the Monitoring Concept Plan (MCP) are guidance documents for all laboratories supporting agent demilitarization operations. TOCDF Laboratory Quality Control Plan (LQCP) will be incorporated for the ATLIC. The TOCDF Laboratory Quality Control Plan (LQCP) and the ATLIC Agent Monitoring Plan (AMP) were prepared in accordance with the requirements of the LMQAP and MCP. The TOCDF LQCP and ATLIC AMP (Attachment 22A) must be at least as stringent as the programmatic guidance.

22A.12.2 Failure To Monitor

22A.12.2.1 All of the monitoring identified in this plan must be operating and in control during processing in a given area or it will be considered a "Missed Monitoring" and will be reported as such. The following are exceptions:

22A.12.2.2 During campaign changeover transition periods when monitors are being changed to a new agent campaign.

22A.12.2.3 When a Temporary Change has been approved (see Paragraph 22A.15.3).

22A.12.2.4 If the ACAMS or MINICAMS is offline for more than one and a half hours, the DAAMS becomes the primary monitor and therefore must be analyzed. This does not apply to the Filter stack or exhaust stack.

22A.12.2.5 If mitigating measures have been taken to secure an area and processing has ceased, then monitoring at that station will not be considered a "missed monitoring." This does not apply to the Filter stack or exhaust stack.

22A.13 NOTIFICATION PROCEDURES

22A.13.1 The Facility Control System in the Control Center collects data from each ACAMS and MINICAMS and stores the readings in a temporary computer file. A computer in the Control Center uses this file to access agent readings from each ACAMS and MINICAMS. The ACAMS and MINICAMS shall alarm at each location when detected agent concentrations meet or exceed the alarm set points. ACAMS and MINICAMS that monitor toxic areas under engineering control may not have a local alarm. (See Section 22A.26) This is because the ACAMS and MINICAMS would be constantly in alarm.

22A.13.2 In the event of an ACAMS or MINICAMS alarming at or above the alarm level, outside of engineering controls, or in category "C" areas or at the SAF Laboratory, the Control Center will notify the Monitoring Team Leader or designee. The Team Leader or designated certified monitoring technician along with one other Monitoring person will respond by going to the location of the ACAMS or MINICAMS that is in alarm. Monitoring personnel evaluate alarms by observing the chromatogram and troubleshooting for malfunctions, verifying the alarm level set point, challenging an ACAMS or MINICAMS with an agent standard to ensure that it is operating correctly, and collecting the associated GA DAAMS tubes for analysis. MINICAMS (with a different column) confirmation will be used for L. The Alarm Response Requirements are specified in Section 22A.31. If the alarm is confirmed by DAAMS for GA or MINICAMS for L, appropriate corrective measures are taken as specified in Attachment 3, (LQCP). When it is believed that the area has been cleaned, the area monitor will determine if the corrective measure was adequate. If results are less than the alarm level set point, normal operations may commence.

22A.13.3 The Control Center shall be notified if the SAF Laboratory ACAMS or MINICAMS alarms and shall notify Monitoring per the requirements of Paragraph 22A.12.2. If the SAF Laboratory has an alarm, neat agent operations at the SAF Laboratory shall be suspended. If the alarm causes ATLIC to fail to meet LCO requirements, waste feed shall cease for all furnace at the ATLIC.

22A.13.4 All ACAMS alarms for GA, which have co-located DAAMS, require analysis of the DAAMS tube(s). The analytical results of the DAAMS tubes, pulled due to an ACAMS alarm, shall be reported to the Control Center. The Laboratory will maintain the official record of all DAAMS results. MINICAMS (with a different column) confirmation will be used for L.

22A.14 CONTROL LIMITS FOR ACAMS

22A.14.1 All ACAMS and MINICAMS that monitor the exhaust stack shall be challenged every 4 hours plus or minus 30 minutes in accordance with TE-LOP-524. The ACAMS and MINICAMS challenge results are collected electronically for all ACAMS and MINICAMS connected to Facility Control System. The data for the ACAMS and MINICAMS not connected to the Facility Control System are recorded manually and then archived. These data are used to assess the performance of individual units and the performance of the overall monitoring system. The LQCP details the pass/fail criteria. The performance of the ACAMS or MINICAMS is tracked daily and any ACAMS or MINICAMS that falls into the fail category is corrected or replaced.

22A.15 MONITOR/MONITORING LOCATIONS

22A.15.1 The monitors within the ATLIC site were placed in locations to maintain minimum distances to the actual sampling point while keeping the equipment out of hazardous areas. For the actual monitoring locations at the ATLIC, see Appendix A and the associated drawings.

22A.16 MONITORING PLAN

22A.16.1 List of Monitors

22A.16.1.1 Appendix A outlines the monitoring stations for operations of the ATLIC.

22A.16.2 Limiting Conditions of Operation (LCOs)

22A.16.2.1 The monitors identified for a given campaign must be operating at all times and are considered to be Limiting Condition of Operation (LCO). In the event that a monitor is not capable of operating, immediate corrective actions will be taken. (See Paragraph 22A.15.3).

22A.16.3 Temporary Changes

22A.16.3.1 Temporary changes may be made to the requirements of this plan by following the normal procedures, which provide proper approvals and documentation. This will allow for adding to, reducing the number of, or changing the configuration of agent monitors on a temporary basis. The Permittee shall notify the Executive Secretary orally of any reduced monitoring applicable to this Attachment prior to implementation.

22A.16.4 Additional Support

22A.16.4.1 Occasionally support from DCD, or other TOCDF facilities is required for additional monitoring support. This may include the use of a Real Time Analytical Platform (RTAP) or monitoring trailer for increased monitoring of an area, or for an upset condition.

22A.17 MONITORING STRATEGY

22A.17.1 Worker Population Limit (WPL) Monitoring

22A.17.1.1 Worker Population Limit (WPL) monitoring will be performed with DAAMS. The WPL monitoring is conducted daily for all work areas where chemical agent is present without secondary vapor containment and workers are not required to wear respirator protection. Also, the Category C areas where agent is not present are monitored on a monthly basis. WPL monitoring will be required for the first five days of agent processing.

22A.17.2 Short Term Exposure Limit (STEL) and Vapor Screening Limit (VSL) Monitoring

22A.17.2.1 VSL monitoring will be performed at all workplace locations as specified in Appendix A

22A.17.2.2 DAAMS for GA or MINICAMS for L (with a different column) will be used to confirm or deny a VSL exceedance. Incoming air will be minimized to prevent dilution of sample when clearing bagged items. The filter stacks use the VSL monitoring limit on the ACAMS and/or MINICAMS itself, but any confirmed release will be reported in a concentration (mg/m^3).

22A.17.2.3. STEL and VSL are equivalent in terms of concentration values, but are different in that STEL is based on a 15 minute time-weighted average and that VSL is independent of time.

22A.17.3 Source Emission Limit (SEL)

22A.17.3.1 SEL is a ceiling value that serves as a source emission limit, and not as a health standard. It is used for monitoring the exhaust stack. Staggered ACAMS and/or MINICAMS which monitor continuously are required on the exhaust stack for each agent being processed. DAAMS for GA or MINICAMS for L (with a different column) are used as confirmation for any ACAMS (GA) or MINICAMS (L) alarm above the alarm level. A Waste Feed Cutoff for all incinerator/furnace is initiated when an alarm at or above the alarm level is exceeded at the exhaust stack.

22A.17.4 AEL Levels

	G-agents mg/m^3	L mg/m^3
STEL (15-Minutes)	0.0001	0.003
WPL[1] (12-Hours)	0.00002	0.003
WPL (8-Hours)	0.00003	0.003
WPL (4-Hours)	0.00006	0.003
SEL	0.0003	0.03
IDLH (30-Minutes)	0.1	0.36
VSL	0.0001	0.003

Notes:

[1] The 12-hour WPL monitoring level will be used for routine historical monitoring and for areas where munitions are stored outside of secondary containment.

22A.17.5 Monitoring Cessation

22A.17.5.1 Confirmation monitoring may be suspended once agent has been confirmed to be present (NRT-only monitoring will be required to verify effectiveness of corrective actions). Once corrective actions have been resolved, confirmation monitoring shall be re-instituted. Any

ACAMS or MINICAMS alarm, without co-located DAAMS for GA or MINICAMS for L, is assumed to be agent.

22A.17.5.2 Agent specific monitoring may be halted if no corresponding waste is inside the ATLIC boundaries. Once an agent waste enters the ATLIC boundaries, monitoring must be reinstated for that agent in locations specified in Appendix A. This condition does not apply to the Filter stack.

22A.18 MONITORING EQUIPMENT

The following is a discourse of the types of equipment used for agent monitoring:

22A.18.1 ACAMS

22A.18.1.1 The ACAMS is a near-real-time monitor system with the ability to detect and report the concentration levels of 'GA' chemical agent in the air at either low levels or high levels depending on its monitoring configuration. The ACAMS is configured for the appropriate detection level and the current agent(s) locations. The ACAMS is equipped with remote, audible, and visible alarm systems. The ACAMS samples air during a preset sample period. Agent present in the sample air stream is collected on a solid sorbent bed during the sample period for gas chromatographic (GC) analysis. The results of the GC analysis of the sampled air are displayed on the front panel of the instrument. A permanent record of the chromatogram and the agent concentration is recorded on a strip-chart. The ACAMS produces an audible and visible alarm when the agent concentration level is at or above the preset alarm level. The Facility Control System records the alarm time and agent concentration. The ACAMS are used to detect process upsets and are located in areas where concentrations of agents are of concern or where rapid response is required to allow personnel to work in lower levels of protective dress.

In process areas where high concentrations of agents are possible, a Low-Volume Sampler (LVS) may be utilized. The LVS operates in a process area by drawing air through the LVS, retaining a 1-ml sample. It then sends that 1-ml sample to the ACAMS, which analyzes it and reports the actual agent concentration of the area being sampled. This process is necessary to prevent saturating the ACAMS.

22A.18.2 MINICAMS

The MINICAMS is a near-real time air monitor system with the ability to detect and report the concentration levels of 'L' chemical agent in the air at either low levels or high levels depending on its monitoring configuration. The MINICAMS is configured for the appropriate detection level at the specified agent(s) sample locations. The MINICAMS is equipped with remote, audible, and visible alarm systems. The MINICAMS samples air during a preset sample period. Agent present in the sample air stream is collected on a solid sorbent bed during the sample period for gas chromatographic (GC) analysis. The results of the GC analysis of the sampled air are displayed on the front panel of the instrument. A permanent record of the chromatogram and the agent concentration is recorded on a strip-chart. The MINICAMS produces an audible and visible alarm when the agent concentration level is at or above the preset alarm level. The MINICAMS records the alarm time and agent concentration. The MINICAMS are used to detect process upsets and are located in areas where concentrations of agents are of concern or where rapid response is required to allow personnel to work in lower levels of protective dress.

In process areas where high concentrations of agents are possible, a Low-Volume Sampler (LVS) may be utilized. The LVS operates in a process area by drawing air through the LVS, retaining a 1-ml sample. It then sends that 1-ml sample to the MINICAMS, which analyzes it

and reports the actual agent concentration of the area being sampled. This process is necessary to prevent saturating the MINICAMS.

22A.18.3 DAAMS

22A.18.3.1 An additional monitoring system used is the DAAMS. DAAMS involve passing sampled air through a sorbent bed where any agent is being collected. The sample periods are determined by P&A study results and are in the range of three minutes to twelve hours. DAAMS analysis is performed using a Class 1 quantitative method. However, when DAAMS are used in conjunction with an ACAMS for GA, the results are used to confirm or refute the presence of agent. If an ACAMS or MINICAMS is not monitoring correctly and has associated DAAMS, the DAAMS tubes become the primary monitor and must be collected and analyzed. DAAMS samples provide independent confirmation of positive ACAMS readings and a historical record of monitoring, in areas not monitored by ACAMS or MINICAMS, at the WPL and GPL locations.

22A.18.3.2 DAAMS tubes shall use a labeling system to track the specific station and agent of each tube. All confirmed DAAMS results, greater than the reporting limit (RL), shall be reported to the Control Center immediately. All confirmed sub-RL levels shall be tracked and trended by the laboratory.

22A.18.4 Sample Lines

22A.18.4.1 The agent sampling lines are heated to aid in the transmission of the sample. Appendices C&D show the configuration of the sampling assembly. They consist of Teflon sample lines with self-regulating heat tape. These ACAMS, MINICAMS and DAAMS sample lines shall be challenged at the distal end of the sample line every 60 days ± 3 days. Other sample lines may not be heat traced as long as all challenges are performed at the end of the sample line. In these cases the line is challenged with agent to prove transmission of the agent down the sample line.

22A.18.4.2 All sample lines must be challenged and demonstrate transmission efficiency prior to the commencement of operations. After the completion of the initial sample line challenge, all non-toxic sample lines must be challenged at least every 60 days ± 3 days.

22A.18.4.3 Sample lines in toxic areas are challenged during campaign changeover.

22A.18.5 Sample Lines (Suffixed with "S")

22A.18.5.1 Monitoring stations whose station number is suffixed by an "S" (spool) are to be used for special or short term monitoring only. The purpose of the "S" stations is to allow monitoring in specific locations that do not have a regularly assigned ACAMS or MINICAMS. The station equipment consists of a sample line only.

22A.18.5.2 When the monitoring is performed, an adjacent ACAMS or MINICAMS will be connected to the "S" sample line. In some cases the lines are arranged on a spool to allow them to be reeled out and moved to the point that needs sampling. The ACAMS and MINICAMS that are used in conjunction with the "S" sample lines have switches that designate the station in use. The purpose of the switch is to identify the correct monitoring location to the Facility Control System. This causes the ACAMS or MINICAMS data to be cataloged to the correct sampling point and therefore provide accurate traceability of monitoring results.

22A.18.5.3 During the time the ACAMS or MINICAMS is connected to the spool sample line, the DAAMS that was associated with the original ACAMS or MINICAMS becomes the primary monitor for that location. This means that the DAAMS tubes must be analyzed, rather than serving the function of being confirmation DAAMS that only get analyzed in the event of an ACAMS alarm. Additionally, if the ACAMS alarms while connected to the spool, there are

no DAAMS tubes to serve the confirmation function. If there are readings on the ACAMS or MINICAMS while it is in the spool mode, it must be assumed to be agent.

22A.18.6 Silver Fluoride Pads – V to G Pads

22A.18.6.1 Silver fluoride pad assemblies, or V to G pads, are used with GA ACAMS and DAAMS stations when ATLIC is processing GA waste. They are designed to place the silver fluoride pads in the sample stream such that the pads are exposed to the sample stream. Silver Fluoride pads for GA are used to cause a chemical reaction that result in a species with a narrower chromatographic peak. All assemblies will contain at least two silver fluoride pads held in place. Additional pads do not aid or hinder the efficiency. A detailed description of each type is located in TE-LOP-528, V/G Conversion Pad Assembly.

22A.18.6.2 ACAMS silver fluoride pads shall be replaced as needed by indicating factors such as chromatography and/or challenge results. The pads shall be challenged before replacement, so that the silver fluoride pads that have been in service are part of the challenge to ensure adequate transfer. If the pads challenge is outside 75-125% recovery, qualification of data is required.

22A.18.7 EDT 1,2-ethanedithiol

22A.18.7.1 EDT gas (a 200 ppm mix of EDT in N2) is used with L MINICAMS stations and will be introduced at the distal end of the L sample lines to react with the L to form an L- derivative that is more volatile and easily transported.

22A.19 STACK CONFIGURATION

Agent monitoring of the exhaust stack (PAS) effluent consists of ACAMS, MINICAMS and DAAMS.

22A.19.1 ACAMS/MINICAMS

22A.19.1.1 There are three ACAMS assigned to monitor the exhaust stack for GA agent being processed. Two of the ACAMS for GA agent are on line constantly. Their operating cycles are staggered to allow one unit to be in the analysis mode while the other is sampling. This results in continuous monitoring of the exhaust stack. DAAMS analysis is used for alarm confirmation. The third ACAMS serves as a standby unit when one of the other units is off-line for challenging or corrective action. The three ACAMS for GA agent are linked to the Facility Control System individually.

22A.19.1.2 There are six MINICAMS assigned to monitor the exhaust stack for L agent being processed. Four MINICAMS for L agent are on line constantly. Their operating cycles are staggered to allow two units to be in the analysis mode while the other two are sampling. This results in continuous monitoring of the exhaust stack. Two of the MINICAMS are fitted with different columns for alarm confirmation. Two MINICAMS serve as standby units when two of the other units are off-line for challenging or corrective action. The six MINICAMS for L agent are linked to Facility Control System individually.

22A.19.1.3 An alarm is sounded in the CON if the ACAMS or MINICAMS cycling does not provide 100% monitoring of the exhaust stack for each agent. If this occurs, an AWFCO is initiated and DAAMS analysis is required for the period the ACAMS or MINICAMS was not staggered sampling the exhaust Stack.

22A.19.2 DAAMS

22A.19.2.1 There are three DAAMS tubes aspirating at all times on each DAAMS manifold. They are the **A** tube, a **B** confirmation tube, and a **C** contingency tube. A fourth tube, which is a QP, is also aspirated in accordance with the LQCP. The sampling equipment is designed such that a sample is being collected constantly, even when a set of tubes is being replaced. The stack DAAMS will have a "no-flow" audible alarm to warn operators when the DAAMS is not operating.

22A.20 EXHAUST STACK MONITORING

22A.20.1 Suspended Exhaust Stack Monitoring

22A.20.1.1 Exhaust stack monitoring will not be suspended without CMA Site Project Manager or designee and the Executive Secretary approval.

22A.21 MONITORING FOR AGENT FROM PAST CAMPAIGNS

22A.21.1 Monitoring in Category A and B areas, for past agent contamination may be discontinued when the airborne agent contamination for that area is less than 1.0 VSL over a 24-hour period, at a minimum temperature of 70° F, with the ventilation system operating at the approved flow rates. A confirmed agent reading at or above 1.0 VSL requires that the area must undergo additional decontamination.

22A.21.2 Monitoring in Category C areas for past agent campaign contamination may be discontinued when the Category C area has been less than 0.5 $WPL^{(12\text{-hour})}$ for each agent being discontinued over a 24-hour period, , with the adjacent A& B area ventilation systems operating at the approved flow rates at a minimum temperature of 70°F. Monitoring data shall be submitted to the Executive Secretary for approval prior to discontinuation of any agent monitor in a C area.

22A.22 ACAMS and MINICAMS DATA COLLECTION

22A.22.1 ATLIC ACAMS and MINICAMS are integrated into the Facility Control System. The Facility Control System stores all readings taken by each ACAMS or MINICAMS to a temporary computer file. From this file, a computer is able to compile trends from each ACAMS or MINICAMS for up to 72 hours and, upon demand, display these trends to graphics screens in the Control Center. Various automated reports are used to observe these trends to be used as a management tool to make improvements and determine the level of readiness of the overall ACAMS or MINICAMS system. This temporary file is compressed to an archival file that becomes the permanent record of agent readings. From the archival file, the computer is able to trend each connected ACAMS or MINICAMS for any desired time period. Results of all ACAMS or MINICAMS challenges are electronically recorded and, additionally, they are manually recorded in the ACAMS or MINICAMS logbook (see Section 22A.10.1 for any potential exceptions to manually recorded logbooks) at each instrument. These results provide a basis for statistical analysis to assess performance and for reporting to regulatory agencies. Some areas in the ATLIC as noted in Appendix A do not have Facility Control System, therefore, the ACAMS or MINICAMS chart recorder and instrument log are used to record readings and QC data that are then archived.

22A.23 DAAMS SYSTEM

22A.23.1 The DAAMS sampling system is capable of collecting agent GA by use of Chromosorb and L with Tenax sorbent beds. The sample is then analyzed using GC/FPD. MSD, LCMS or with LC/ICPMS analysis techniques. The total volume of air sampled is calculated from the sampling time and the sample flow rate. Desorption of the DAAMS tube into a GC/FPD for analysis provides the total mass of agent collected. The average air concentration of agent is then calculated from this data. By increasing the sample time or flow rate, the average concentration sensitivity can be increased. DAAMS stations shall report agent concentration at or above their calculated reporting limit for the agent of interest. The lowest calibration *standard used for analysis must be at or below the reporting limit.*

22A.24 BACKUP EQUIPMENT

22A.24.1 The function of the ACAMS or MINICAMS is to rapidly detect agent. Should a needed instrument fail, the first response is to troubleshoot and repair it in place. Should the estimated repair time be excessive (as determined by the Control Center) the ACAMS or *MINICAMS will be replaced with an ACAMS or MINICAMS from the contingency stock.*

22A.25 MAINTENANCE

22A.25.1 The Monitoring Technicians and Instrument Technicians have completed mandatory ACAMS and MINICAMS training at the Chemical Demilitarization Training Facility (CDTF) or TOCDF and are qualified to maintain and operate ACAMS and MINICAMS. The manufacturers' manuals and LOPs provide necessary guidance.

22A.26 START UP OF MONITORING

22A.26.1 Agent monitoring in the ATLIC will be initiated in each area as needed. A Monitoring Plan for each campaign must have approval from the CMA Site Project Manager or Designee. The monitoring identified in the "campaign specific" plan will be started in sufficient time to allow baseline data collection. The operational readiness review (ORR) for the campaign shall include review of the plan and the baseline data. The information in this plan is the basis for all campaign specific plans.

22A.27 ACAMS and MINICAMS ALARM HORN

22A.27.1 There are cases where ACAMS or MINICAMS have an alarm in the Control Center but there is no local alarm. This is a safety measure. There are areas that have frequent alarms but it does not mean that the workers in the area must mask. It is important that the workers do not become accustomed to ignoring ACAMS and MINICAMS alarms. Some examples are: Toxic Area ACAMS and MINICAMS and airlock ACAMS and MINICAMS. In all of these cases an alarm does not indicate that the people in the location of the ACAMS or MINICAMS need to mask. ACAMS and MINICAMS that have the horn disconnected must have a sign at the ACAMS or MINICAMS indicating such.

22A.28 ACAMS and MINICAMS ALARM LEVEL

22A.28.1 The set point for the ACAMS and MINICAMS agent alarms is specified in the monitoring station tables (Attachment A). Due to the design characteristics of the ACAMS or MINICAMS and the software that operates the alarm, there may be slight variations in the actual alarm level for each ACAMS and MINICAMS.

22A.29 PORTABLE ACAMS, MINICAMS and DAAMS MONITORING TRAILERS

22A.29.1 There are a minimum of two Portable Monitoring Trailers housing ACAMS and/or MINICAMS and DAAMS at TOCDF. They are for special short-term monitoring to support short-term activities.

22A.30 CARBON FILTERS ON ACAMS and MINICAMS

22A.30.1 In special circumstances, an ACAMS or MINICAMS purpose is not to provide monitoring on a continuous basis but for a specific need such as for monitoring charcoal change-out at the Filter Farm. When these types of ACAMS or MINICAMS are operating but not sampling the area for which they are intended, a charcoal filter may be installed at the ACAMS or MINICAMS.

22A.31 FUGITIVE EMISSIONS MONITORING

22A.31.1 If a leak is discovered in any equipment in an agent processing area at the ATLIC, that leak shall be monitored for agent using an ACAMS or MINICAMS. The method used for this monitoring will be a modified Method 21 from 40 CFR, Part 60 using an ACAMS or MINICAMS for agent.

Method Requirements	ATLIC Facility Capabilities	Mitigation/ Justification
A portable or area instrument will be used to monitor leaks for Volatile Organic Compounds (VOCs)	The area ACAMS or MINICAMS will be used or a portable monitor that is configured for the specific VOC (agent).	N/A
The VOC instrument detector shall respond to the compounds being processed, and both the linear response range and measurable range of the instrument shall encompass the leak concentration.	The ACAMS and MINICAMS meet this criterion, their being calibrated with the compound of interest.	N/A
The scale of the instrument meter shall be readable to +/- 2.5% of the specified leak definition concentration when performing a no detectable emission survey.	The ACAMS and MINICAMS meter readout is digital, so the concentration is displayed with easy to read numbers.	N/A
The instrument shall be equipped with an electrically driven pump to insure that a sample is provided to the detector at a constant flow rate. The rate will be 0.10 to 3.0 LPM, measured at the probe tip.	The ACAMS and MINICAMS comply with this requirement, with a normal flow rate of 0.40 to 1.0LPM.	N/A
The instruments shall be intrinsically safe, as defined by U.S.A. standards for use in any explosive atmospheres that may be encountered in its use.	The ACAMS and MINICAMS sample line meets this requirement since the ACAMS and MINICAMS unit is not inside the explosive environment.	N/A
The instrument shall be equipped with a probe or probe extension for sampling not to	The ACAMS and MINICAMS meets this requirement ¼ inch	N/A

Method Requirements	ATLIC Facility Capabilities	Mitigation/ Justification
exceed ¼ inch outside diameter, with a single opening for admission of a sample.	outside diameter is the standard for ACAMS sample lines and probes.	
The instrument response factors for the VOC to be measured shall be less than 10. The response factor is the ratio of the known concentration of a VOC compound to the observed meter reading when measured using an instrument calibrated with the specified reference compound.	The ACAMS and MINICAMS meet this criterion.	N/A
The instrument response time shall be equal to or less than 30 seconds. with all sampling equipment connected and operating.	The ACAMS and MINICAMS do not meet this criterion. But, this is a special application and has been approved	The ACAMS and MINICAMS are the best available technology for agent sampling. Since the ACAMS and MINICAMS must collect a sample before analysis. the 5-15 minute response time is as fast as the analysis can be run. while still maintaining accurate results.
The calibration precision must be equal to or less than 10 percent of the calibration gas value.	The ACAMS and MINICAMS meet this criterion, except that the ACAMS and MINICAMS uses a liquid calibration standard. By TOCDF procedure the calibration challenge must be +/- 10 % of the target value.	N/A

NOTE

The challenge, calibration and operation of the ACAMS or MINICAMS will comply with Laboratory Operating Procedure (LOP) 524 in Attachment 3 (Sampling and Analytical Procedures) and this Attachment.

22A.32 ALARM RESPONSE REQUIREMENTS

22A.32.1 Exhaust Stack Alarm for GA or L

If the ACAMS alarms at or above 0.5 SEL for GA or 0.4 for L agent a RCRA Automatic Waste Feed Cut-Off (AWFCO) shall be initiated for the furnaces/incinerators. Monitoring personnel shall be deployed. DAAMS tubes that support GA ACAMS shall be pulled and

analyzed on the stack. MINICAMS with a different column supporting the MINICAMS in alarm will be checked by monitoring personnel.

22A.32.2 Filter Stack Alarm for GA or L

If the ACAMS or MINICAMS, monitoring the Filter stack, alarms at or above the agent alarm set point then Monitoring personnel shall be deployed. DAAMS tubes that support GA ACAMS shall be pulled and analyzed. MINICAMS with a different column supporting the MINICAMS in alarm will be checked by monitoring personnel.

If agent is confirmed, no additional agent may be brought into the ATLIC without Executive Secretary approval.

22A.32.3 Workplace Monitoring for GA and L (Category C and D Areas)

If the ACAMS or MINICAMS indicates (in Control Center) that the agent level is at or above the action level of 0.2 VSL for GA and 0.3 VSL for L then the Control Center shall *notify Monitoring and Monitoring shall respond and verify ACAMS or MINICAMS* operation and pull DAAMS tubes. If the ACAMS or MINICAMS is at or above the alarm level (Appendix A), then the DAAMS tubes that support GA ACAMS shall be pulled and analyzed. MINICAMS with a different column supporting the MINICAMS in alarm will be checked by monitoring personnel.

APPENDIX A

ATLIC
AGENT MONITORING PLAN DETAIL

AGENT MONITORING PLAN

Explanation of Column Titles

Station Number

The station number was assigned by Monitoring in accordance with the Monitoring Station Numbering Sheet. This is the number used by the Facility Control System. The numbers are specific to the geographic location being monitored. This number cannot be reassigned to any other location due to the restraints caused by the 40-year record-keeping requirement. When an S suffixes a station number, it indicates that the sample line is movable to various sample points. The S indicates spool. A K suffix to a station number indicates that the station monitors for GA. when a station is suffixed with an L, it indicates the station monitors for Lewisite.

ACAMS/MINICAMS/DAAMS Tag Number

This number identifies the tag number for the ACAMS, MINICAMS or DAAMS specific to that station number. If an ACAMS, MINICAMS or DAAMS is removed for repair and a new ACAMS, MINICAMS or DAAMS is installed at that station, the tag number will stay with the new ACAMS, MINICAMS or DAAMS. This is to prevent the need to update the Monitoring Plan each time maintenance is required. Temporary DAAMS are installed with an assigned sample number instead of a tag number. Monitoring will track the ACAMS, MINICAMS or DAAMS being repaired using the unit's serial number.

Unit Location

This designates the detector's physical location by room, floor plan number, and the drawing number (from the attached Monitoring Plan drawings).

Area Monitored

This designates the geographic location being monitored by room and floor plan number.

Power Type

UPS - Battery backup used on ACAMS and MINICAMS. DAAMS using the same station number will be connected to UPS.

Essential Power - Commercial power backed up by an emergency generator. All heat trace will use the essential power.

Secondary Power (Distribution) System (SPS) – The secondary power system refers to the standard power supply. Items such as cabinet and pump ventilation fans are connected to the SPS

Sample Point Hazard Category

A through E, with "A" being a room where liquid agent is likely to be present to "E" where no agent will be found. See Terminology Section for complete definition.

Monitoring Level

Indicates the purpose of the ACAMS, MINICAMS or DAAMS stations and corresponding monitoring level or sensitivity of the monitor. If VSL is listed, the purpose of the ACAMS or MINICAMS is to monitor equipment/waste/personnel contamination levels. When ECL is listed, the location is being monitored at a more sensitive level than required by CMA direction. In other words, if ECL/VSL is listed, the monitors are in the VSL mode but are more sensitive than

required by the Programmatic Monitoring Concept Plan for that monitoring location. The agent concentrations for each monitoring level are specified in Attachment 22A, Appendix A.

Alarm Level

The alarm level at the ACAMS or MINICAMS station is the same as it is in the Control Center. *The alarm level shown is in terms of the monitoring level shown in the previous column.* The alarm levels are set below threshold levels to allow action to be taken to avoid exceeding threshold levels. The alarm level starts a specific course of actions. The specific requirements are identified in Section 22A.31 (Alarm Response Requirements). An alarm located in toxic areas, filter mid-beds, or other closed containers do not require the contingency procedures to be implemented.

Sample Line Length

Lengths of the sample lines are listed with an accuracy of ±20%.

DAAMS Mode

The mode is an indication of the purpose of the DAAMS. Examples are:

ACAMS Confirmation: The DAAMS is used to confirm an ACAMS reading in the event of an agent alarm. Additionally the station with a monitoring level of VSL/WPL will have the DAAMS tubes analyzed at the WPL at least monthly to provide evidence that there isn't an agent concentration in the area below the detectible range of the ACAMS.

Historical: Historical monitoring is performed to measure very low concentrations of airborne analytes, where contamination is unlikely or workers are operating without personal protective equipment (PPE). Sampling is accomplished by the collection of an air sample over an extended period of time (usually the duration of a workday) and subsequent analysis is conducted offline at the laboratory. Historical monitoring is designed to trigger activities to investigate the source of contamination that may be found below the alarm level of the Near Real Time (NRT) monitor.

Primary DAAMS: In this case the DAAMS is the only agent monitor.

Comments

Additional information as needed.

The table that follows provides monitoring details sorted by Station Number (Table 1).

Table 1. Monitoring Details, Sorted by Station Number

	STA #	ACAMS /MINICAMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
TEN	708AK	543	N/A	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	0.5	50	N/A	Alternating Cycles w/708BK or 708CK
TEN	708BK	544	N/A	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	0.5	50	N/A	Alternating Cycles w/708AK or 708CK
TEN	708CK	545	N/A	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	0.5	50	N/A	Alternating Cycles w/708AK or 708BK
TEN	708DK	N/A	687	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	N/A	50	ACAMS CONFIRM	
TEN	708EK	N/A	688	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	N/A	50	ACAMS CONFIRM	NOTE 3
TEN	709AL	142	N/A	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	0.4	50	N/A	Alternating Cycles w/709BL or 709CL
TEN	709BL	143	N/A	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	0.4	50	N/A	Alternating Cycles w/709AL or 709CL

	STA #	ACAMS /MINICAMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
TEN	709CL	144	N/A	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	0.4	50	N/A	Alternating Cycles w/709AL or 709BL
TEN	709DL	145	N/A	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	0.4	50	N/A	NOTE 2
TEN	709DL	N/A	689	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	N/A	50	HISTORICAL	
TEN	709EL	146	N/A	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	0.4	50	N/A	NOTE 2
TEN	709EL	N/A	690	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	N/A	50	HISTORICAL	NOTE 3
TEN	709FL	147	N/A	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Exhaust Stack RM 111	UPS	N/A	SEL	0.4	50	N/A	NOTE 2
TEN	721K	527	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	Entry A/L A RM 107	UPS	A	VSL/ECL	0.5/5/40	91	N/A	
TEN	721L	129	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	Entry A/L A RM 107	UPS	A	VSL/ECL	0.4/5/40	91	N/A	
TEN	722AK	525	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	Entry A/L B RM 105	UPS	B	VSL	0.5	100	N/A	

	STA #	ACAMS /MINICAMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
TEN	722AL	128	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	Entry A/L B RM 105	UPS	B	VSL	0.4	100	N/A	
TEN	725ALS	130	680	Igloo Monitoring Room EG-22A-G-1000-S3 RM 114	Processing Bay RM 104	UPS	C	VSL/WPL	0.4	100	HISTORICAL	NOTE 5 NOTE 6
TEN	725BLS	131	N/A	Igloo Monitoring Room EG-22A-G-1000-S3 RM 114	Processing Bay RM 104	UPS	C	VSL	0.4	100	N/A	NOTE 2 NOTE 6
TEN	725KS	529	679	Igloo Monitoring Room EG-22A-G-1000-S3 RM 114	Processing Bay RM 104	UPS	C	VSL/WPL	0.5	100	ACAMS CONFIRM	NOTE 5 NOTE 6
TEN	726AKS	531	N/A	Processing Bay EG-22A-G-1000-S3 RM 104	Gloveboxes RM 104	UPS	N/A	VSL	0.5	40	N/A	NOTE 4
TEN	726ALS	132	N/A	Processing Bay EG-22A-G-1000-S3 RM 104	Gloveboxes RM 104	UPS	N/A	VSL	0.4	40	N/A	NOTE 4
TEN	727K	533	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	TOX RM 106	UPS	A	VSL/ECL/IDLH	0.5/5/40	98	N/A	
TEN	727L	134	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	TOX RM 106	UPS	A	VSL/ECL/IDLH	0.4/5/40	98	N/A	
TEN	728K	537	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	LIC RM 109	UPS	A/B	VSL/ECL	0.5/5/40	90	N/A	

	STA #	ACAMS /MINICAMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
TEN	728L	137	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	LIC RM 109	UPS	A/B	VSL/ECL	0.4/5/40	90	NA	
TEN	729AL	135	682	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	OBS COR RM 108	UPS	C	VSL/WPL	0.4	100	HISTORICAL	
TEN	729BL	136	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	OBS COR RM 108	UPS	C	VSL	0.4	100	N/A	NOTE 2
TEN	729K	535	681	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	OBS COR RM 108	UPS	C	VSL/WPL	0.5	100	ACAMS CONFIRM	
TEN	730AL	138	684	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	TOX Monitoring Room RM 110	UPS	D	VSL/WPL	0.4	30	HISTORICAL	
TEN	730BL	139	N/A	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	TOX Monitoring Room RM 110	UPS	D	VSL	0.4	30	N/A	NOTE 2
TEN	730K	539	683	TOX Monitoring Room EG-22A-G-1000-S4 RM 110	TOX Monitoring Room RM 110	UPS	D	VSL/WPL	0.5	30	ACAMS CONFIRM	
TEN	731K	N/A	685	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Environmental Control System Area RM 111	UPS	D	WPL	N/A	30	HISTORICAL	NOTE 5

	STA #	ACAMS /MINIC AMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
TEN	731L	N/A	686	PAS Monitoring Room EG-22A-G-1000-S5 RM 113	Environmental Control System Area RM 111	UPS	D	WPL	N/A	30	HISTORICAL	NOTE 5
TEN	732K	N/A	732	Cotton Goods Storage Area EG-22A-G-1000-S3 RM 107	PSF Laundry Area	Portable UPS	D	WPL	N/A	40	HISTORICAL	NOTE 7 NOTE 5
TEN	732L	N/A	733	Cotton Goods Storage Area EG-22A-G-1000-S3 RM 107	PSF Laundry Area	Portable UPS	D	WPL	N/A	40	HISTORICAL	NOTE 7 NOTE 5
TEN	733K	N/A	703	Cotton Goods Storage Area EG-22A-G-1000-S3 RM 107	Cotton Goods	SPS	D	WPL	N/A	40	HISTORICAL	WPL Monitoring For Agent Of Interest Going To Laundry NOTE 7
TEN	733L	N/A	704	Cotton Goods Storage Area EG-22A-G-1000-S3 RM 107	Cotton Goods	SPS	D	WPL	N/A	40	HISTORICAL	WPL Monitoring For Agent Of Interest Going To Laundry NOTE 7
TEN	734K	N/A	667	Control Center Equipment Enclosure EG-22A-G-1000-S5 RM 101	Control Center Equipment Enclosure RM 101	UPS	D	WPL	N/A	80	HISTORICAL	NOTE 5

	STA #	ACAMS /MINICAMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
TEN	734L	N/A	668	Control Center Equipment Enclosure EG-22A-G-1000-S5 RM 101	Control Center Equipment Enclosure RM 101	UPS	D	WPL	N/A	80	HISTORICAL	NOTE 5
TEN	736K	N/A	671	Igloo Monitoring Room EG-22A-G-1000-S3 RM 114	Entry Support Equipment Enclosure	UPS	D	WPL	N/A	35	HISTORICAL	NOTE 5
TEN	736L	N/A	672	Igloo Monitoring Room EG-22A-G-1000-S3 RM 114	Entry Support Equipment Enclosure	UPS	D	WPL	N/A	35	HISTORICAL	NOTE 5
TEN	741AL	148	692	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 101 Mid-Bed 1	UPS	N/A	VSL	0.4	100	HISTORICAL	NOTE 1 NOTE 5
TEN	741BL	149	N/A	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 101 Mid-bed 1	UPS	N/A	VSL	0.4	100	N/A	NOTE 1 NOTE 2
TEN	741K	549	691	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 101 Mid-Bed 1	UPS	N/A	VSL	0.5	100	ACAMS CONFIRM	NOTE 1 NOTE 5
TEN	742K	N/A	715	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 101 Mid-Bed 2	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	742L	N/A	716	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 101 Mid-Bed 2	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	743K	N/A	705	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 101 Vestibule	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5

	STA #	ACAMS /MINICAMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
TEN	743L	N/A	706	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 101 Vestibule	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	744AL	148	694	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 102 Mid-bed 1	UPS	N/A	VSL	0.4	100	HISTORICAL	NOTE 1 NOTE 5
TEN	744BL	149	N/A	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 102 Mid-Bed 1	UPS	N/A	VSL	0.4	100	N/A	NOTE 1 NOTE 2
TEN	744K	549	693	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 102 Mid-bed 1	UPS	N/A	VSL	0.5	100	ACAMS CONFIRM	NOTE 1 NOTE 5
TEN	745K	N/A	717	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 102 Mid-bed 2	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	745L	N/A	718	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 102 Mid-bed 2	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	746K	N/A	707	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 102 Vestibule	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	746L	N/A	708	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 102 Vestibule	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	747AL	148	714	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 103 Mid-bed 1	UPS	N/A	VSL	0.4	100	HISTORICAL	NOTE 1 NOTE 5

	STA #	ACAMS /MINIC AMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
TEN	747BL	149	N/A	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 103 Mid-Bed 1	UPS	N/A	VSL	0.4	100	N/A	NOTE 1 NOTE 2
TEN	747K	549	713	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 103 Mid-Bed 1	UPS	N/A	VSL	0.5	100	ACAMS CONFIRM	NOTE 1 NOTE 5
TEN	748K	N/A	719	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 103 Mid-Bed 2	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	748L	N/A	720	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 103 Mid-Bed 2	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	749K	N/A	711	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 103 Vestibule	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	749L	N/A	712	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter 103 Vestibule	UPS	N/A	WPL	N/A	100	HISTORICAL	NOTE 1 NOTE 5
TEN	750AK	553	695	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter Stack	UPS	N/A	VSL	0.5	100	ACAMS CONFIRM	
TEN	750AL	154	697	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter Stack	UPS	N/A	VSL	0.4	100	HISTORICAL	
TEN	750BK	554	696	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter Stack	UPS	N/A	VSL	0.5	100	ACAMS CONFIRM	Stand-By For TEN 750AK

	STA #	ACAMS /MINICAMS TAG #	DAAMS TAG #	UNIT LOC FLOOR PLAN # DRAWING #	AREA MONITORED FLOOR PLAN #	POWER TYPE SPS/UPS	SAMPLE POINT HAZ CAT	MONITORING LEVEL	ALARM LEVEL Z	SAMPLE LINE LENGTH ±20%	DAAMS MODE	COMMENT
TEN	750BL	155	698	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter Stack	UPS	N/A	VSL	0.4	100	HISTORICAL	NOTE 2
TEN	750CL	156	N/A	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter Stack	UPS	N/A	VSL	0.4	100	N/A	Stand-By for TEN 750AL and 750BL
TEN	750DL	157	N/A	Filter Monitoring Room EG-22A-G-1000-S6 RM 115	Filter Stack	UPS	N/A	VSL	0.4	100	N/A	Stand-By for TEN 750AL and 750BL NOTE 2

AGENT MONITORING PLAN NOTES

1. See Paragraph 22A.8 for filter monitoring protocol.
2. MINICAMS used for confirmation monitoring.
3. Used as a backup to the primary TEN (708.709) DAAMS when tubes are being pulled or maintenance is being performed on primary DAAMS.
4. These ACAMS/MINICAMS and DAAMS can be switched to monitor three different locations.
5. WPL samples must be collected and analyzed on a daily basis at this station.
6. The ACAMS, MINICAMS and DAAMS may be switched to monitor Vestibule 101.
7. Facility UPS not available will install individual UPS for each station.

Hazard Level:

STEL	Short Term Exposure Limit
SEL	Source Emission Limit.
WPL	Worker Population Limit
ECL	Engineering Control Level
IDLH	Immediately Dangerous to Life and Health
VSL	Vapor Screening Limit

4. SUPPORTING INFORMATION

Attachment 1 - Surrogate Trial Burn Plan for the Area Ten Liquid Incinerator, Rev. 0 (included as a separate attachment)

Attachment 2 - Lewisite Comprehensive Performance Test Plan for the Area Ten Liquid Incinerator, Rev. 0 (included as a separate attachment)

Attachment 3 - Final Report for Ton Container Sample Analysis, October 2, 2009 and Addendum of November 17, 2009 (included as a separate attachment)

Attachment 4 - Facility and Process and Instrument Drawings (P&ID) (included as a separate attachment)

2.2.1.3.2. The Permittee shall analyze the chemical agent prior to each TOCDF agent campaign from bulk containers. Agent samples shall be collected from a representative number of bulk containers agreed upon with the DSHW. The containers shall be sampled and analyzed following an approved sampling and analysis plan.

2.2.1.3.3. At the beginning of each TOCDF munition or bulk container campaign, agent samples shall be collected using a sampling scheme that is approved by the Executive Secretary. The samples shall be analyzed as specified in Table 2-0. The sampling and analysis requirements for agents GA and Lewisite, which will be processed at the ATLIC, are specified in paragraph 2.2.1.21 of this attachment.

2.2.1.3.4. Metals included in the HRA list are Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Thallium, Tin, Vanadium, and Zinc.

2.2.1.3.5. The metals analysis associated with the agent waste profile will be accomplished using the methods described in Tables 2-0 and 2-3. The metal analytes quantified will be the HRA metals listed in Paragraph 2.2.1.3.4.

2.2.1.3.6. Baseline Mustard Ton Containers

2.2.1.3.6.1 Prior to TOCDF receipt of Mustard ton containers, each TC shall have been sampled and analyzed at DCD Area 10 in accordance with the Area 10 Sampling Program.

2.2.1.3.6.2 During the LIC ATB shakedown for baseline Mustard ton containers, each week one sample shall be collected from the ACS tank and analyzed for HRA metals, agent organics content and density, provided the ton container's liquid contents have been previously sampled and analyzed at Area 10 for HRA metals and shown to contain less than one part per million of mercury (< 1 ppm (mg/kg)).

2.2.1.3.6.3 During LIC post-ATB and long-term incineration processing of Mustard baseline ton containers, the DCD Area 10 liquid Mustard sample analyses results will be used by TOCDF for characterization for the liquid Mustard in the baseline ton containers

2.2.1.3.6.4 During the MPF ATB shakedown for baseline Mustard ton containers, sludge/solid samples will be collected in accordance with the MPF Mustard Trial Burn Plan.

2.2.1.3.6.5 The metals analysis associated with the agent samples collected in compliance with Paragraph 2.2.1.3.6. may be performed using either the site specific or the SW-846 methods described in Tables 2-0 and 2-3. Analytes quantified by the SW-846 methods shall be those HRA metals listed in paragraph 2.2.1.3.4.

2.2.1.3.6.6 Reserved.

2.2.1.3.6.7 Based on the results of the agent sampling and analytical, agent feed rates to the incinerators shall be adjusted, as necessary, to ensure continued compliance with the metal feed rate limits.

2.2.1.3.6.8 For each agent organic analysis and metals analysis, a summary of the results shall be submitted to the Executive Secretary monthly.

2.2.1.3.6.9 Appendix A of this waste analysis plan contains the following information regarding the chemical agents to be incinerated at the TOCDF:

2.2.1.5.3. ACS/AQS/SDS maintenance residues shall be properly managed prior to treatment in the MPF.

2.2.1.5.4 ACS. AQS and SDS sludge shall be categorized as Agent Contaminated Sludge and managed as specified in paragraph 2.2.1.18.

2.2.1.6. Secondary Waste Noncombustible Bulk Solid Waste Category

2.2.1.6.1. Noncombustible Bulk Solid Secondary Waste is composed of inert material that does not combust when placed into the incinerator. Examples of this waste are discarded components of MDB process equipment. and carbon filter trays (from which all carbon has been removed).

2.2.1.6.2. The physical state of these wastes (i.e.. debris) prevents the collection of a representative sample. All wastes included in this category are described by the Utah Hazardous Waste code P999. Other waste codes may apply based on generator knowledge.

2.2.1.6.3. Wastes included in this category shall be placed onto MPF burn trays or thermally treated ton containers that have been cut in half (cutaway ton containers or CTC) or Waste Incineration Containers (WICs). All wastes shall be weighed and characterized prior to being treated in the MPF to ensure compliance with this Permit. The Operating Record shall include a detailed description of the residues fed to the MPF in each burn tray, WIC or CTC.

2.2.1.6.4. Noncombustible Bulk Solid Wastes shall be properly managed prior to treatment in the MPF.

2.2.1.6.5. Management of Noncombustible Bulk Solid Waste shall be in accordance with paragraph 2.2.1.6 prior to treatment in the MPF.

2.2.1.6.6. Additionally, these wastes included in this category may be processed in the Autoclave (Igloo 1631) provided an approved function test has been demonstrated and approved by the Executive Secretary.

2.2.1.6.7. For Autoclave processing, the TOCDF operating record shall include an entry for each secondary waste drum processed in the Autoclave. Each of these entries will include a description of the waste. type of container, the total weight waste, the volume of the container storing the waste. the hazardous waste label number. and the time and date the waste was processed in the Autoclave per Module VIII.

2.2.1.7. Drained Bulk Containers & Undrained Mustard 155mm Projectiles with Agent Residue

2.2.1.7.1. Drained bulk containers and projectiles with chemical agent residue (heel) shall be treated in the MPF, with the exception of Agent GA, Lewisite, and Transparency ton containers. Previous analytical results show some of the chemical agent to contain concentrations of metals. In addition. the paints used on the containers and projectiles have metal-containing pigments.

2.2.1.7.2. The chemical agents and item surface coatings (i.e., paint) are both organic matrices containing metal constituents. Metal constituents contained in organic matrices are referred to as non-embedded metals. Non-embedded metals may potentially volatilize during incineration.

2.2.1.7.3 Appendix B contains the following tables regarding the metals associated with each type of chemical agent munition and bulk container to be treated at the TOCDF:

2.2.1.7.3.1 Table 2-B-1: Metals in Munitions (presents by munition or bulk container. the total metal loading for non-embedded metals whose emission rates are regulated by this Permit).

2.2.1.7.3.2 Table 2-B-2: Metals in Munitions (presents. by munition or bulk container. the total metal loading for non-embedded metals whose emission rates are considered in the TOCDF HRA).

2.2.1.7.4 Data included in these tables can be used to determine the quantity (and associated feed rate) of non-embedded metals fed to the incinerator. Note data for GA and Lewisite ton containers are included in the table for completeness. Drained Agent GA and Lewisite ton containers will be treated at the ATLIC.

2.2.1.7.5 Mustard 155mm projectiles are included for the purposes of the Waste Analysis Plan: however, the mustard 155mm projectiles are not required to be drained prior to incineration in the MPF.

2.2.1.8. Energetic Munition Components

2.2.1.8.1. Energetic munition components shall be incinerated in the DFS.

2.2.1.8.2. The Permittee may use generator knowledge to determine the type and amount of explosive and propellant being fed to the DFS.

2.2.1.8.3. Appendix C contains the following tables pertaining to explosive/propellant and agent fill weights and compositions:

2.2.1.8.3.1. Table 2-C-1: Energetic/Agent Nominal Weight for Chemical Agent Munitions and Bulk Containers

2.2.1.8.3.2. *Table 2-C-2: Composition of Reactive Material in Munitions*

2.2.1.8.4. Explosive formulations are organic matrices containing metal constituents. The metals contained in these formulations will potentially volatilize during incineration (i.e., the metals are non-embedded).

2.2.1.8.5. The quantity of each metal identified in Table 2-C-2 has been incorporated into Tables 2-B-1 and 2-B-2 found in Appendix B which present the total non-embedded metals for each munition and bulk container type to be treated at the TOCDF.

2.2.1.9. ECR Maintenance Residues

2.2.1.9.1. Maintenance performed on the demilitarization machines, Agent Quantification System (AQS) components, and Agent Collection System (ACS) components that are located in the Explosive Containment Rooms (ECR) will generate waste residues. Dry residues and sludge shall be placed into paper buckets prior to being fed to the DFS. A list of the ECR Maintenance Residues is provided in Table 2-2a.

2.2.1.18.3 Wastes containing metals must meet the requirements per Table V.C.1. by waste analysis if a sample can be obtained or by engineering evaluation based on manufacture literature. Manufacture information will be documented in the operating record.

2.2.1.18.4 Secondary wastes are in process once placed on a WIC, provided the WIC is located in the Lower Buffer Storage Area or the TMA A/B Area.

2.2.1.19 Agent Contaminated Sludge/Aqueous Wastes*

2.2.1.19.1 Waste is classified as sludge when it cannot be managed by the LIC system because of the inability to transfer to the ACS tanks. Sludge is generated from the maintenance of the ACS. AQS and SDS equipment maintenance and is managed separately from other secondary waste. Sludge is fed alone on a WIC. Sludge will be spread across the bottom of the WIC/container with a uniform thickness of less than 1.5 inches and verified prior to feeding into the MPF. Aqueous Waste* shall be fed to the MPF in 5-gallon container with fusible spout.

2.2.1.19.2 A representative sample of sludge shall be collected and analyzed prior to treatment in the MPF. The samples will be analyzed for HRA metals. Sampling and analysis is required for each WIC of sludge treated in the MPF.

2.2.1.19.3 Aqueous Wastes* are generated from the residue of the decontaminated drums of secondary waste and can either be processed through the LIC or processed in the MPF. If processed in the MPF. Aqueous Wastes shall be containerized and the containerized waste shall not be fed with other wastes on the WIC. The waste analysis requirements specified in Paragraph 2.2.1.19.2 shall be applicable to containerized Aqueous Waste treated in the MPF. The Aqueous feed rate shall not exceed the waste feed rate equivalent to the sludge feed rate.

2.2.1.20. Autoclave Secondary Waste Management

2.2.1.20.1. The secondary waste matrices contaminated with Agents VX, GB, or Mustard that are listed in Condition VIII.D.7.vi may be treated in the Autoclave upon approval of the Executive Secretary.

2.2.1.21. Agent GA - ATLIC

2.2.1.21.1. Agent GA is destroyed exclusively at the ATLIC and is discarded product characterized by the State and Federal hazardous waste codes P999, D004, D006, D008, D009, and D021. Previous analytical results show Agent GA to contain arsenic at concentrations of approximately 40 parts per million (ppm) lead at concentrations of approximately 20 ppm, and chlorobenzene at concentrations of approximately 14 weight percent. The analysis also showed the presence of chromium at concentrations of less than 3 ppm.

2.2.1.21.2. The Agent GA drained from each ton container is fed directly to the ATLIC Primary Combustion Chamber (PCC). Because an intermediate storage vessel is not used to accumulate the agent drained from the ton containers, each GA ton container has been sampled and analyzed before processing. Samples of Agent GA were collected from each ton container and analyzed for agent organic content and HHRA metals. The results are provided in Table 2-A-2. A detailed report of the Agent GA Analytical results was submitted to the Executive Secretary.

2.2.22. Lewisite - ATLIC

2.2.1.22.1. Lewisite is destroyed exclusively at the ATLIC and is discarded product characterized by the State and Federal hazardous waste codes P999, D004, D007, D008, D009 and D010. Previous analytical results show Lewisite to contain arsenic at concentrations of 34 weight percent, mercury at concentrations of approximately 500 ppm and selenium at concentration up to approximately 6 ppm (see Table 2-A-2).

2.2.1.22.2. The Lewisite drained from each ton container is transferred to the agent storage tank located in the ATLIC Toxic Area. Each Lewisite ton container is drained to the greatest extent possible, however the amount removed is not quantified. Additionally the tank the Lewisite is transferred to is a relatively large diameter tank so the change in tank volume caused by the addition of agent from successively drained ton containers cannot be used to accurately determine the amount of agent drained from each Lewisite ton container which is necessary to determine metal concentrations via a mass balance. Therefore the content of the agent collection tank (LCS-TANK-8511) shall be sampled and analyzed for HHRA metals before being processed in the ATLIC primary combustion chamber (i.e., each tank processed as a batch).

2.2.1.22.3. Organic analysis is not performed because; 1) an organic analysis has been performed on Lewisite and those results have been provided to the DSHW, 2) the organic compounds contained in Lewisite are easier to destroy then the compounds that were incinerated during the performance testing that established the operating parameter limits that assure compliance with the organic compound Destruction and Removal Efficiency (DRE) Performance Standard, and 3) additional organic analysis would provide no useful information to the operator.

2.2.1.23Spent Decontamination Solution - ATLIC

2.2.1.23.1 Spent Decontamination Solutions are generated at the ATLIC from the rinsing out of GA, and maintenance activities. This waste stream also includes the water rinses that are drained from the GA, L and Transparency ton containers (see Paragraph 2.2.1.25). When a ton container is drained of its Agent GA fill it is filled more than half-way with a Sodium Hydroxide (NaOH) based decontamination solution. The ton container is then slowly rotated within the Glove Box for a pre-established period of time.

2.2.1.23.2 When the decontamination step is completed the Spent Decon Solution is transferred from the ton container to a permitted hazardous waste storage tank (SDS_TANK-8523) for later processing in the Secondary Combustion Chamber (SCC) of the ATLIC.

2.2.1.23.3 Prior to processing, the tank's contents are analyzed for agent content to ensure the Agent GA concentration is less than 20 parts per billion (ppb), which is the Waste Control Limit (WCL) for Agent GA, and for HHRA metals. Note: if the Agent GA concentration is equal to or greater than 20 ppb NaOH based Decon Solution is added to the tank and the contents are sampled and analyzed again for agent.

2.2.1.24Spent Nitric Acid - ATLIC

2.2.1.24.1 After each Lewisite ton container is emptied of its agent fill, the ton container is filled more than half way with a 3 Molar Nitric Acid solution and rotated for a specified period of time. This processing step is performed to remove the high metal content solid phase of Lewisite and breakdown products which cling to the inner surface of the ton containers. Each Lewisite ton container undergoes at least one acid rinse.

2.2.1.24.2. The Spent Nitric Acid is transferred to one of two permitted hazardous waste storage and treatment tanks (NFS-Tank-8514 or NFS_TANK-8516) which are located in the ATLIC Toxic Area. This waste stream is described by waste codes P999, D002, D004, D007, D008, D009, and D010.

2.2.1.24.3. The Spent Nitric Acid is accumulated in the Nitric Acid Holding Tanks until the tank's contents are sampled and analyzed for agent concentration. If the results show the L concentration to be equal to or greater then the WCL (200 ppb) nitric acid of 3 M or higher concentration is added to the tank and the contents are circulated and re-sampled.

2.2.1.24.4. When the results show the L concentration to be below the WCL (200 ppb) the spent acid is transferred to a 90-day accumulation tank located in the PAS Enclosure where it is stored pending transfer to an off-site TSDF for deep well injection. Note the metals analysis for this waste stream is associated with the 90-day accumulation tank sampling and analysis requirements (see paragraph 2.2.2.30).

2.2.1.25Ton Container Rinse Water - ATLIC

2.2.1.25.1 Upon completion of the rinsing and draining of the NaOH based Decon Solution from GA ton containers and the draining of the Spent Nitric Acid Rinsate from the Lewisite ton containers the empty ton containers are further rinsed with at least three separate rinses of process water. The volume of process water used for each rinse is equivalent to at least half the volume of the ton container. Water is added to the drained ton container then the container is rotated for a specified period of time. For GA this waste stream is described by the federal and state waste codes F999, D002, D004, D007, and D021. The applicable waste codes for Lewisite Ton Container Rinse Water are F999, D002, D004, D007, D008, D009, and D010. Ton container rinse water is drained and transferred to SDS-TANK-8523 located in the Toxic Area of the ATLIC for processing in the ATLIC SCC. During the processing of GA ton containers the rinse water is comingled with the Spent Decon Rinsate generated from the rinsing of the GA ton containers.

2.2.1.25.2 During Agent GA processing, the sampling and analysis applicable to this waste stream occurs when the contents of the SDS tank is filled and the applicable analyses are Agent GA content and HHRA metals.

2.2.1.25.3 *During Lewisite processing the solution accumulating in the SDS tank (SDS-TANK-8523) is primarily spent rinse water.* The sampling and analysis requirements remain the same as during GA processing; i.e., prior to processing the tank's contents will be sampled and analyzed for agent content to determine the Lewisite concentration relative to the WCL and to determine the HHRA metals concentrations. The WCL for L generated spent decon (which is composed of Lewisite and Transparency ton container rinse water and maintenance activity generated spent decon) is 200 ppb.

2.2.2. **Analyses for Wastes Requiring Off-Site Treatment & Disposal**

2.2.2.1. The waste streams included in this section shall be transported off site for further treatment and ultimate disposal. The analytical parameters were selected based on process knowledge, TOCDF analytical data, and Land Disposal Restriction Notification requirements. The extraction method that will be used to determine Toxicity Characteristic parameter concentrations will be the Toxicity Characteristic Leaching Procedure (SW-846 Method 1311).

2.2.2.9.3. The residue waste stream resulting from the MPF incineration treatment of secondary waste shall be managed separately from the munitions metal residues and shall not be recycled. This waste stream shall be shipped to an approved hazardous waste facility for disposal.

2.2.2.10 MPF Munitions and Ton Container Residues

2.2.2.10.1 MPF munitions and ton container residues will be composed primarily of incinerated paint flakes and residues removed from the interior and exterior of the munition and ton containers as well as their burn trays. Residues shall be removed from each ton container or munition and associated burn trays and managed as hazardous waste separately from munition/ton container.

2.2.2.10.1.1 MPF munitions and ton container residues shall be analyzed for chemical agent concentrations, HRA metals, TCLP metals and TCLP organics.

2.2.2.10.2 Residue generated from the processing of ton containers and munitions shall be sampled and analyzed per Table 2-1. The sampling frequency may be extended to quarterly if supporting information is submitted and approved by the Executive Secretary that demonstrates the consistency of the analytical results relative to the hazardous waste codes applied to this waste stream.

2.2.2.10.3 The agent cavities of the mustard 155mm projectiles are obstructed by the burster well which prevents access to the projectiles' interior surfaces. The interior of the projectile will not be cleaned out prior to disposal at an approved hazardous waste facility.

2.2.2.10.4 The small opening at the top of the 4.2-inch Mortars coupled with the obstruction caused by the interior baffle prevents access to the mortars' interior surfaces, thereby precluding cleanout. Therefore, the interior of the mortars will not be cleaned out prior to disposal at an approved hazardous waste facility.

2.2.2.11 Incinerator Refractory

2.2.2.11.1 Upon change out, the discarded refractory lining of the incinerator primary and secondary chambers shall be analyzed for TCLP metals and properly managed.

2.2.2.12 PAS Residues

2.2.2.12.1 PAS residues are comprised of scrubber brine precipitate and filter elements. The precipitate is collected in the bottom of the PAS process vessels (i.e., the quench towers, packed bed scrubbers, and demister vessels), and the PAS brine filters.

2.2.2.12.2 Reserved

2.2.2.12.3 The PAS residues shall be analyzed for the parameters of chemical agent concentration, corrosivity (pH), free liquids, TCLP metals, and TCLP organics.

2.2.2.13 TOCDF Spent Scrubber Brines

2.2.2.13.1 Scrubber brines are removed from the PAS as they are generated by the process control equipment. Spent scrubber brines shall be stored in BRA-TANK-101, BRA-TANK-102, BRA-TANK-201, and BRA-TANK-202.

2.2.2.13.2 The scrubber brines are shipped to an off-site TSDF for further treatment as necessary and ultimate disposal.

2.2.2.13.3 Spent scrubber brines from each BRA tank to be transferred off site for further treatment and ultimate disposal shall be analyzed for chemical agent concentration, corrosivity (pH) and specific gravity.

2.2.2.13.4 On a monthly basis or each munitions campaign change, whichever is sooner, a composite sample comprised of a sample from each BRA Tank shall be analyzed for TCLP metals and TCLP organics. This analysis is to confirm the current waste profile for scrubber brines. The brine from which the confirmatory sample was taken may be shipped off site under the current brine waste profile.

2.2.2.13.5 For Subpart CC VOC demonstration compliance, spent scrubber brines shall be sampled as the tank is being filled as required in Table 2-1 and specified by Section 2.10.

2.2.2.13.6 Spent scrubber brines shall only be shipped off site for further treatment and ultimate disposal if the agent concentration in the brines is below 20 ppb for GB and VX. and 200 ppb for Mustard.

2.2.2.13.7 Reserved.

2.2.2.13.8 MPF brine samples shall be collected and analyzed after the initial agent verification sampling the furnace is completed and trays are fed back to back. but no longer than 4 weeks after commencement of the mustard 155mm projectile campaign. Brine samples shall be collected from the discharge of the on-line MPF PAS brine pump. The samples shall be collected weekly, within the last four hours of the 12-hour day shift. and before any manual adjustment is made to MPF PAS liquid levels (excluding adjustments required addressing contingencies.) The samples shall be collected weekly until approval of the Executive Secretary to discontinue this sampling frequency has been granted. The samples shall be analyzed for HRA metals.

2.2.2.14 TOCDF SDS Tank Sludges

2.2.2.14.1 Filters associated with the SDS tanks collect solids that have precipitated out of spent decontamination solution. The sludge removed from the filters associated with the SDS tanks shall be analyzed for chemical agent. corrosivity (pH). free liquids. explosives. TCLP metals, and TCLP organics.

2.2.2.14.2 SDS tank sludges shall only be shipped off site for further treatment and ultimate disposal if the agent concentration in the sludges is below 20 ppb for GB and VX, and 200 ppb for Mustard. If the agent concentration is found to be greater than or equal to these values. decontamination solution shall be added to the accumulation container and the analysis for chemical agent, pH, and free liquids shall be repeated.

2.2.2.14.3 Sludges from SDS sumps located outside of the ECRs shall be managed in accordance with Paragraphs 2.2.2.14.1 and 2.2.2.14.2.

2.2.2.15 *BRA Tank Sludges*

2.2.2.27.1 Sump 110 is a collection sump designed to receive precipitation run-off collected on the incinerator PAS concrete pads. In the event of a PAS process equipment leak, the potential exists for Sump 110 to also accumulate incinerator PAS liquids/solids (e.g., scrubber brines). These liquids/solids generated from the treatment of chemical agents and chemical agent munitions are a listed hazardous waste in Utah.

2.2.2.27.2 If the material (either liquid or solids) accumulated in Sump 110 is to be transferred off site for treatment and/or disposal, a sample of the material shall be analyzed for agent concentration, pH, TCLP metals, and TCLP organics. If the agent concentration is below 20 ppb for GB or VX or below 200 ppb for Mustard, then the material may be transferred off site for treatment and/or disposal.

2.2.2.27.3 Unless the Permittee can demonstrate in accordance with R315-2-3(d) that the material removed from the sump is not a hazardous waste, the material shall be managed as a hazardous waste.

2.2.2.27.4 To determine if liquid collected in Sump 110 shall be treated on site or transferred off site for further treatment and disposal, the liquids shall be visually inspected for the presence or absence of a surface oil sheen. Sump 110 liquids having a surface oil sheen, which is evidence that organics were mixed with the sump contents, shall not be transferred to the BRA for on-site treatment.

2.2.2.27.5 When material accumulated in Sump 110 is transferred off site in tankers, the material in each tanker shall be sampled and analyzed for pH, TCLP metals and TCLP organics. The material shall also be analyzed to confirm that agent concentrations are at or below either 20 ppb for GB and VX, or 200 ppb for Mustard.

2.2.2.27.6 If no surface oil sheen is visually present on the liquid accumulated in Sump 110, the liquid may be transferred to one of the BRA-Tanks. Any solid material removed from the sump shall be managed as a hazardous waste.

2.2.2.27.7 Instead of off-site treatment/disposal, the liquid accumulated in Sump 110 may be transferred to one of the BRA-Tanks provided no surface oil sheen is visually present. Likewise, any solid material removed from the sump may be containerized and then stored and/or treated on site.

2.2.2.28 Autoclave Treated Waste

2.2.2.28.1 Each batch of waste treated in the Autoclave is subjected to a minimum temperature for minimum time-period. The final process step is to fill the previously evacuated Autoclave with ambient air. After a predetermined time to allow for mixing and evaporation of moisture from the treated waste, the interior of sealed Autoclave is monitored for agent.

2.2.2.28.2 Treated secondary waste with post-treatment headspace agent monitoring results of less than 0.5 vapor screening level (VSL) and demonstrated WCL of less than 20 ppb for VX and GB and 200 ppb for mustard may be managed in roll-offs for off-site transport to a Subtitle C TSDF as F999. Other waste codes may apply.

2.2.2.28.3 Treated secondary wastes with post-treatment headspace agent monitoring results of less than 0.5 VSL, but without demonstrated WCL of less than 20 ppb GB and VX and 200 ppb~~b~~ mustard, may be managed in roll-offs for off-site transport to a Subtitle C TSDF as P999/F999 with additional off-site controls (special handling through contract

requirements) as an added measure of control to reduce potential contact with waste. Other waste codes may apply.

2.2.2.28.4 If the agent monitoring results of the Autoclave headspace shows an agent concentration equal to greater than 0.5 VSL the batch of wastes must undergo a new treatment cycle in the Autoclave.

2.2.2.29Spent Scrubber Brines - ATLIC

2.2.2.29.1 Spent Scrubber Brines are generated from the operation of the ATLIC Pollution Abatement System (PAS). Purged scrubber brines are transferred to one of three 12,000 gallon 90-day accumulation storage tanks. The federal and state waste codes applicable to this waste stream are F999, D002, D004, D007, D008, D009, and D010. Because Spent Scrubber Brines are generated from an incineration process organic compounds are not expected to be present. The organic compounds treated by the incinerator are destroyed before the exhaust gas contacts the scrubber brines.

2.2.2.29.2 Each Tank of Spent Scrubber Brines is sampled and analyzed for the agent being processed to ensure the agent concentration is below the WCL (20 ppb for GA, 200 ppb for Lewisite). Samples will be collected from one tank at the beginning of each agent campaign and quarterly thereafter. The periodic samples will be analyzed for TCLP metals including the analytes specified in Table 2-4a and TCLP organics. Additionally samples will be collected and analyzed for the organic compounds listed in Tables 2-4b and 2-4c if the brines are Toxicity Characteristic for organics.

2.2.2.30Less Than (<) WCL Spent Nitric Acid - ATLIC

2.2.2.30.1 Spent Nitric Acid is first collected in one of two permitted hazardous waste storage tanks located in the ATLIC Toxic Area. Once the Lewisite concentration in the contents of a tank is demonstrated to be less than the 200 ppb WCL they are transferred to a 90-day accumulation tank located in the ATLIC PAS Enclosure.

2.2.2.30.2 Less than WCL Spent Nitric Acid is anticipated to have high concentrations of arsenic and mercury based on the analytical results for the solid phase Lewisite that was found to cling to the interior of the Lewisite ton containers. The federal and state waste codes applicable to this waste stream are F999, D002, D004, D007, D008, D009 and D010.

2.2.2.30.4 TOCDF will collect samples from each < WCL Spent Nitric Acid Tank prior it contents being shipped offsite to a Subtitle C TSDF. Samples will be analyzed for TCLP metals including the analytes specified in Table 2-4a and TCLP organics. Additionally samples will be collected and analyzed for the organic compounds listed in Tables 2-4b and 2-4c if the < WCL reject water results are Toxicity Characteristic for organics. Since this waste stream will be disposed off-site through deep well injection TOCDF will additionally collect samples to be analyzed for total suspended solids, and pH.

2.2.2.31Spent Powdered Activated Carbon (PAC) - ATLIC

2.2.2.31.1 The ATLIC PAS includes equipment to inject PAC into the exhaust gas stream. The PAC is injected after the Exhaust Gas Re-Heater. The PAC adsorbs Mercury and (if any) residual organic vapors from the exhaust gas. Spent PAC is generated from operation of a baghouse filter system which removes the PAC from the exhaust gas. Spent PAC is discharged from the hopper located below the baghouse into a storage container. The federal and state waste codes applicable to this waste steam are F999, D004, D007, D008,

D009, and D010. Organic compounds are not expected to be present at this point in the process because they are destroyed in the ATLIC combustion chambers.

2.2.2.31.2 Each drum of Spent PAC generated is sampled and analyzed for the agent being processed to ensure the agent concentration is below the WCL (20 ppb for GA, 200 ppb for Lewisite). Samples will be collected from one container at the beginning of each agent campaign or quarterly and analyzed for TCLP metals including the analytes specified in Table 2-4a, TCLP organics and total metals. Additional samples will be collected and analyzed for the organic compounds listed in Tables 2-4b and 2-4c if the PAC is Toxicity Characteristic for organics.

2.2.2.32Baghouse Fabric Filters - ATLIC

2.2.2.32.1 Discarded baghouse fabric filters are contaminated with the PAC. The applicable federal and state waste codes are the same as those for PAC; i.e., F999, D004, D007, D008, D009, and D010. Organic compounds are not expected to be present at this point in the process because they are destroyed in the ATLIC combustion chambers.

2.2.2.32.2 Because discarded baghouse fabric filters are contaminated with PAC, the waste characterization that is applicable to the PAC will be applied to the baghouse filters. Sampling of baghouse fabric filters is not required.

2.2.2.33Spent PAS Fixed Bed Activated Carbon System Pre- and HEPA Filters - ATLIC

2.2.2.33.1 The final ATLIC PAS component exhaust gas flows through before it is released to the ambient air is a fixed bed activated carbon filter system. There are two carbon filter systems with one being on-line whenever the incinerator is at operating temperature. Each filter consists of a pre-filter followed by a High Efficiency Particulate Air (HEPA) filter, followed by a single bank of sulfur impregnated activated carbon, followed by a second HEPA filter. Spent PAS Fixed Bed Activate Carbon Filter system pre- and HEPA filters may be contaminated with Arsenic, Chromium, Lead, and Mercury. The applicable federal and state waste codes associated with this waste steam are F999, D004, D007, D008, and D009. The filters are not expected to be contaminated with organics because they are located downstream of the combustion chambers and are also located downstream of where the PAC is injected and removed (see previous section).

2.2.2.33.2 Spent ATLIC pre- and HEPA filter are sampled and analyzed for TCLP metals, including the analytes specified in Table 2-4a. These wastes are managed off-site at a Subtitle C TSDF.

2.2.2.34Spent PAS Fixed Bed Activated Carbon - ATLIC

2.2.2.34.1 The spent activated carbon removed from the ATLIC PAS carbon filter systems is anticipated to be contaminated with mercury and arsenic, the applicable waste codes being F999, D004, and D009. The carbon in the fixed bed units is not expected to be contaminated with organics because units are located downstream of the combustion chambers and are also located downstream of where the PAC is injected and removed (see previous section).

2.2.2.34.2 The carbon will be sampled and analyzed for agents that were processed while the carbon was being used as a filter media to ensure this waste is below the WCL prior to it being transferred off-site for treatment and disposal at a Subtitle C TSDF. This waste stream

will additionally be analyzed for TCLP metals, including the analytes specified in Table 2-4a and total metals.

2.2.2.35Spent ATLIC HVAC System Pre- and HEPA Filters - ATLIC

2.2.2.35.1 The ATLIC Heating Ventilation and Air Conditioning (HVAC) System consists of three filter units, with any two on-line at all times that agent is in the facility. Within each filter is a bank of pre-filters followed by a bank of HEPA filters, followed by three banks of activated carbon filters, followed finally by a second bank of HEPA filter. These filter elements will be replaced on an as-need basis. The applicable waste code is P999 for the pre- and HEPA filter located in from of the carbon beds and F999 for the HEPA filter located behind the last carbon bed.

2.2.2.35.2 Discarded pre- and HEPA filters located before the carbon beds have a high potential of being contaminated with agent and are therefore managed on-site per the requirements found in Module VIII which are associated Autoclave and Drum Ventilation System/Drum Ventilation and Sorting System Room (DVS/DVSSR) secondary waste management.

2.2.2.36Facility Spent HVAC Activated Carbon - ATLIC

2.2.2.36.1 The ATLIC HVAC Filter System uses activated carbon as a filter media to control chemical agent emissions. There are three filter units, each containing three banks of activated carbon. Agent monitoring is conducted after the first and second carbon banks in each filter unit. The first bank of carbon will be contaminated with agent through use. The second and third carbon beds of each filter are determined to be contaminated with agent based on sampling and analysis of the carbon for agent or by results of the HVAC filter unit mid-bed agent monitoring results.

2.2.2.36.2 Agent contaminated carbon is treated on-site by the addition of Decontamination Solution to the waste accumulation container. A sample of the solution is collected from the container following the addition and analyzed for agent to determine compliance with the WCL (20 ppb for GA, 200 ppb for Lewisite) prior to the waste being transferred to an off-site Subtitle C TSDF. The federal and state waste code applicable to this waste steam after the addition of Decontamination Solution to the accumulation container is F999.

2.2.2.36.3 Activated carbon removed from carbon banks that were positioned after a carbon bank that did not experience agent breakthrough as determined by inter-bed agent monitoring is sampled and analyzed for agent to demonstrate the concentration is below the WCL (20 ppb for GA, 200 ppb for Lewisite). If the results show the agent concentration to be equal to or greater than the WCL the carbon is treated in the accumulation container as described in the previous paragraph. If the results are less than the WCL, the carbon is transferred to an off-site Subtitle C TSCF as an F999 waste.

2.2.2.37Secondary Waste - Agent Monitoring Waste - ATLIC

2.2.2.37.1 Agent Monitoring Waste is generated from routine maintenance conduced on the ATLIC agent monitoring systems and includes manufactured items contaminated with agent. Examples include nitrile gloves, pre-concentrator tubes (glass tube filled with activated carbon) gas chromatograph analytical columns, stainless steel connectors, and Teflon tubing. The waste code applicable to this waste stream is P999.

2.2.2.37.2 Agent monitoring wastes are managed on-site per the requirements found in Module VIII

which are associated Autoclave and Drum Ventilation System/Drum Ventilation and Sorting System Room (DVS/DVSSR) secondary waste management.

2.2.2.38Secondary Waste - Discarded PPE (Level A Suits, Butyl Rubber gear) - ATLIC

2.2.2.38.1 Discarded Personal Protection Equipment (PPE) is generated by personnel who make entries into contaminated areas of the ATLIC (i.e., the Toxic Area where the hazardous waste storage tanks are located). This waste stream is composed of manufactured items potentially contaminated with agent and includes Level A emergency responses suites, butyl rubber gloves and boots, etc. The equipment is decontaminated prior to being removed by the "Entrant". The waste code applicable to this waste stream is P999 if the decontamination procedure is not successful and F999 if it is successful.

2.2.2.38.2 Discarded PPE wastes are managed on-site per the requirements found in Module VII that are associated Autoclave and Drum Ventilation System/Drum Ventilation and Sorting System Room (DVS/DVSSR) secondary waste management.

2.2.2.39Secondary Waste – Life Support System (LSS) Air Hoses - ATLIC

2.2.2.39.1 The LSS air hose waste stream is generated by the personnel entries into the agent contaminated area of the ATLIC LSS air hoses are discarded when they contact or are suspected to have contacted liquid chemical agent. This waste codes applicable to this waste stream is P999.

2.2.2.39.2 Discarded LSS air hoses are managed on-site per the requirements found in Module VIII that are associated Autoclave and Drum Ventilation System/Drum Ventilation and Sorting System Room (DVS/DVSSR) secondary waste management.

2.2.2.40Secondary Waste - Agent Feed System Strainers - ATLIC

2.2.2.40.1 There is a feed system associated with each hazardous waste storage and treatment tank. Each feed system includes strainers positioned before the pump that is used to transfer the liquid waste to the incinerator. Note there is a feed system specific to GA however this agent is not transferred to a storage tank prior to incineration; rather it is fed to the Primary Combustion Chamber of the ATLIC directly from the ton container. The strainers are periodically replaced. The spent strainers are treated on-site.

2.2.2.40.2 The federal and state waste codes applicable to spent strainers generated from feed systems that manage chemical agents are P999, D004, D007, D008, D009, and D021.

2.2.2.40.3 Spent Agent Feed System strainers will be treated on-site during the Secondary Waste Campaign associated with the type of agent contaminating the strainers.

2.2.2.41Secondary Waste - Spent Decon Tank System Strainers - ATLIC

2.2.2.41.1 Spent Decon tank system strainers are included in a separate category because they are not expected to be contaminated with agent. GA Ton containers are filled more than half way with a NaOH based decontamination solution after their agent fill has been removed. The NaOH based decontamination solution is known to destroy the chemical agents. Waste codes associated with this waste stream are P999, D004, D007, and D008.

2.2.2.41.2 Representative samples of the discarded strainers are analyzed for agent and TCLP metals, including the analytes specified in Table 2-4a. Samples from each of these two

waste streams are collected once during each agent campaign.

2.2.2.42Secondary Waste - Spent Nitric Acid Holding Tank System Strainers - ATLIC

2.2.2.42.1 Spent Nitric Acid Holding Tank System strainers are generated from the filtering of the spent acid used to rinse out L TCs. Bench scale studies showed this waste stream to have L concentrations above the WCL depending on the strength of the acid.

2.2.2.42.2 Three (3) M nitric acid is used to rinse out the Lewisite Ton Containers after they are drained of their agent fill. The acid's strength is diminished after use. Based on bench scale testing the concentration of L in the weakened acid is greater then the WCL. The addition of 3 M or greater strength nitric acid drives the L concentration to below the WCL. The waste codes anticipated to be applicable to this waste steam are F999, D004, D007, D008, D009, and D010.

2.2.2.42.3 A representative sample of this waste steam will be sampled and screened for agent L and analyzed for metals TCLP metals, including the analytes specified in Table 2-4a. Organics are not expected to be present due to the high concentration of the Nitric Acid solution.

2.2.2.43Decontaminated Ton Containers - ATLIC

2.2.2.43.1 GA, Lewisite, and Transparency Ton Containers are determined to be decontaminated based on the Agent Screen results obtained from a sample of the third or final water rinse that is performed. If the results show the agent concentration in the rinse water sample is below the waste control limit (20 ppb for GA, 200 ppb for Lewisite) the ton container is determined to be decontaminated. Decontaminated ton containers are transferred to permitted storage as F999 hazardous waste and will be cut in half prior to being transferred to an off-site Subtitle C TSDF.

2.2.2.44Spent Decontamination Solutions Generated During ATLIC Closure

2.2.2.44.1 The ATLIC will process the chemical agent GA and Lewisite and the resulting solutions generated from the rinsing of the ton containers and decontamination activities performed to support day to day operations. Once the GA, Lewisite and "Transparency" TCs have been processed, closure of the ATLIC and associated support systems will begin. Spent Decon generated in support of closure activities may be treated at an off-site Subtitle C TSDF. This will allow the ATLIC to be closed in a shorter period of time.

2.2.2.44.3 ATLIC closure generated Spent Decon Solutions may be treated at an off-site Subtitle C TSDF. The applicable waste codes are anticipated to be F999, D002, D004, D007, D008, D009, D010, and D021. Samples will be collected from each accumulation tank of solutions generated and analyzed for Agents GA and Lewisite, TCLP metals, including the analytes specified in Table 2-4a, TCLP organics, pH, total suspended solids, and total dissolved solids.

2.2.2.44.4 Closure generated spent decontamination solutions may be transferred to an off-site Subtitle C TSDF provided the agent concentration in the waste below the WCL (20 ppb and 200 ppb for GA and Lewisite, respectively), and the waste is treated by direct incineration.

2.3 PARAMETER TEST METHODS R315-8-2.4 [40 CFR 264.13(b)(2)]:

Table 2-0
TOCDF WASTE ANALYSIS PLAN SUMMARY

2.2.1 WASTES REQUIRING ON-SITE TREATMENT

WASTE STREAM	TREATMENT UNIT(S)	ANALYTICAL PARAMETERS[5,7]	PREPARATION and ANALYTICAL METHODS[1,5,8]	FREQUENCY OF ANALYSIS[5] (Establish Profile)	SAMPLING METHOD[5]
2.2.1.15 Miscellaneous Agent Contaminated and Non-Agent Contaminated Liquid Wastes	LIC 1 and LIC 2 Primary Chamber	HRA Metals Review of manufacturer's information for all Properties) for organic constituents identified in Permit	TE-LOP-557, 3050 or 3051, and 6010, or 6020 and 7470	Once for every batch[2]. Analysis to be completed prior to treatment	Tap
2.2.1.16 Reserved					
2.2.1.18 Secondary Waste	MPF	HRA Metals. BTU's. Total Halogens. Ash Content Agent Concentration	TE-LOP-557, 3050, or 3051, and 6010 or 6020 and 7470 ASTM D 5865 or generator knowledge 9056 or generator knowledge ASTM D482 or generator knowledge TE-LOP-572, or generator knowledge	Each WIC fed with sludge	Thief, Scoop, Coliwasa
2.2.1.19 Agent Contaminated Sludge and Aqueous Waste	MPF	HRA Metals	TE-LOP-557, 3050 or 3051 and 6010 or 6020 and 7470	Each WIC	Coliwasa or Pipette
2.2.1.20 Autoclave Secondary Waste Management	Autoclave	Generator knowledge and function testing approvals			
2.2.1.21 Agent GA	ATLIC PCC	Agent Organic Content HHRA Metals Density	N/A	Content of each ton container analyzed before processing, see results in Table 2-A-2 and Final Report for Ton Container Sample Analysis dated October 2, 2009	N/A
2.2.1.22 Lewisite	ATLIC PCC	HHRA Metals	**TE-LOP-XXX**	Each Tank	Tap needs to specified from Lewisite holding tank
2.2.1.23 Spent Decontamination Solution	ATLIC SCC	Agent Screen (GA,L) HHRA Metals	**TE-LOP-XXX** **TE-LOP-XXX**	Each Tank Processed	Tap
2.2.1.24 Spent Nitric Acid	NSF-Tank-8514 NSF-Tank-8516	Agent Screen	**TE-LOP-XXX**	Each Tank Processed	Tap
2.2.1.25 Ton Container Rinse Water	ATLIC SCC	Agent Screen (GA, L) HHRA Metals	**TE-LOP-XXX** **TE-LOP-XXX**	Each tank, sampled along with Spent Decon from SDS Tank during processing	Tap

Table 2-1
TOCDF WASTE ANALYSIS PLAN SUMMARY

2.2.2 WASTES REQUIRING OFF-SITE TREATMENT/DISPOSAL

WASTE STREAM	GENERATION SOURCE	ANALYTICAL PARAMETERS[5]	PREPARATION and ANALYTICAL METHODS[4]	FREQUENCY OF ANALYSIS[5] (establish profile)	SAMPLING METHOD
2.2.2.27 Sump 110	Sump 110	Agent Concentration TCLP Metals TCLP Organics[7] Corrosivity/pH	TE-LOP-572 1311 and 3010 or 3015 and 6010 or 6020 and 7470 1311and 5030 and , 8260 and 3510 or 3520 and 8270 TE-LOP-574 (9040)	Each tanker One sample for analysis	Coliwasa
2.2.2.28 Autoclave Treated Waste	Area 10 (Igloo 1631) Subpart X Autoclave	Agent	TE-LOP-524 (Primary) TE-LOP-522 (Confirmation)	Each Batch Treated	ACAMS (Primary) DAAMS (Confirmation)
2.2.2.29 Spent Scrubber Brines	ATLIC PAS	Agent Screen TCLP Metals (Table 2-4a) TCLP Volatile Organic TCLP Semi-Volatile Organics	**TE-LOP-XXX** 1311and 3010 or 3015 and 6010 or 6020 and7470 5030 and 8260 3510 or 3520 and 8270	Each Tank Each Agent Campaign and Quarterly thereafter	Tap
2.2.2.30 ~ WCL Spent Nitric Acid	PAS-Tank-8569	TCLP Metals (Table 2-4a) TCLP Metals (Table 2-4a) TCLP Volatile Organic Total Suspended Solids pH	1311and 3010 or 3015 and 6010 or 6020 and7470 1311 and 5030 and 8260 1311 and 3510 or 3520 and 8270 EPA 160.2 9045C	Each tank	Tap

Table 2-1
TOCDF WASTE ANALYSIS PLAN SUMMARY

2.2.2 WASTES REQUIRING OFF-SITE TREATMENT/DISPOSAL

WASTE STREAM	GENERATION SOURCE	ANALYTICAL PARAMETERS[5]	PREPARATION and ANALYTICAL METHODS[5]	FREQUENCY OF ANALYSIS[5] (establish profile)	SAMPLING METHOD
2.2.2.31 Spent PAC (Baghouse Residues)	ATLIC PAS	Agent Screen TCLP Metals (Table 2-4a) Total Metals (Table 2-4a) TCLP Volatile Organic TCLP Semi-Volatile Organics	TE-LOP-XXX 1311 and 3010 or 3015 and 6010 or 6020 and 7470 TE-LOP-557 1311 and 5030 and 8260 1311 and 3510 or 3520 and 8270	Composite sample comprised of containers included in each off-site transfer Each Agent Campaign and Quarterly thereafter, composite sample comprised of containers included in an off-site transfer	Thief
2.2.2.32 Baghouse Fabric Filters	ATLIC PAS	Generator Knowledge based on spent PAC analytical results	N/A	N/A	
2.2.2.33 Fixed Bed Activated Carbon Pre- & HEPA Filters	ATLIC PAS	Agent Screen TCLP Metals (Table 2-4a) Total Metals	TE-LOP-XXX 1311 and 3010 or 3015 and 6010 or 6020 and 7470 TE-LOP-557	Sample from one filter comprising each filter bank before each change out	
2.2.2.34 Fixed Bed Activated Carbon	ATLIC PAS	Agent Screen TCLP Metals (Table 2-4a)	TE-LOP-XXX 1311 and 3010 or 3015 and 6010 or 6020 and 7470	Sample from one filter comprising each filter bank for each change out	Thief
2.2.2.35 HVAC Pre- & HEPA Filters	ATLIC Facility HVAC System	Generator Knowledge	N/A	Managed per Module VIII requirements for Secondary Waste (i.e., DVS/DVSSR & Autoclave)	
2.2.2.36 HVAC Activated Carbon	ATLIC Facility HVAC System	Agent Screen	TE-LOP-XXX	One sample of liquid Decon Solution from each waste container generated during change out	Thief
2.2.2.37 Agent Monitoring Waste	ATLIC	Generator Knowledge	N/A	Managed per Module VIII requirements for Secondary Waste (i.e., DVS/DVSSR & Autoclave)	
2.2.2.38 PPE	ATLIC	Generator Knowledge	N/A	Managed per Module VIII requirements for Secondary Waste (i.e., DVS/DVSSR & Autoclave)	
2.2.2.39 LSS Air Hoses	ATLIC	Generator Knowledge	N/A	Managed per Module VIII requirements for Secondary Waste (i.e., DVS/DVSSR & Autoclave)	

Table 2-1
TOCDF WASTE ANALYSIS PLAN SUMMARY

2.2.2 WASTES REQUIRING OFF-SITE TREATMENT/DISPOSAL

WASTE STREAM	GENERATION SOURCE	ANALYTICAL PARAMETERS*	PREPARATION and ANALYTICAL METHODS*	FREQUENCY OF ANALYSIS* (establish profile)	SAMPLING METHOD
2.2.2.40 Agent Feed System Strainers	ATLIC	Generator Knowledge	N/A	Managed per Module VIII requirements for Secondary Waste (i.e., DVS/DVSSR & Autoclave)	
2.2.2.41 Spent Decon Feed System Strainers	SDS-Tank-8523 System	Agent Screen TCLP Metals (Table 2-4a)	TE-LOP-XXX 1311 and 3010 or 3015 and 6010 or 6020 and 7470	Samples collected from one container comprising each off-site transfer	
2.2.2.42 Spent Nitric Acid Feed System Strainers	NFS-Tank-8514 -8516 System	Agent Screen TCLP Metals (Table 2-4a)	TE-LOP-XXX 1311 and 3010 or 3015 and 6010 or 6020 and 7470	Sample collected from one container comprising each off-site transfer	
2.2.2.43 Decontaminated Ton Containers	ATLIC	Agent Screen	TE-LOP-XXX	One sample taken from final water rinse for each ton container processed	
2.2.2.44 Spent Decon Solution Generated During Closure	ATLIC Closure	Agent (GA L) TCLP Metals (Table 2-4a) TCLP Volatile Organics TCLP Semi-Volatile Organics pH Total Dissolved Solids Total Suspended Solids	TE-LOP-XXX 3010 or 3015 and 6010 or 6020 and 7470 5030 and 8260 3510 or 3520 and 8270 TE-LOP-574 (9040) EPA 160.1 EPA 160.2	Each tank generated	Tap

Table 2-3:
Analytical Method Descriptions

Method	Description/Title
	Agent Purity.
TE-LOP-XXX	Agent GA and L Screen for ATLIC Solid Waste Matrices
TE-LOP-XXX	Agent GA and L Screen for ATLIC Liquid Waste Matrices
TE-LOP-XXX	

~~Table 2-A-1 CHEMICAL AGENT PHYSICAL PROPERTIES~~					
~~PROPERTY~~	~~GB~~	~~VX~~	~~H~~	~~HD~~	~~HT~~
~~Chemical Name~~	~~Isopropyl methyl-phosphonofluoridate (Sarin)~~	~~O-ethyl-S[2-(diisopropyl-amino)ethyl] methylphosphonothiolate~~	~~Same as HD with up to 25% impurities~~	~~Bis(2-chloroethyl) sulfide or 2,2'-dichlorodiethyl sulfide (sulfur mustard)~~	~~Same as HD with 40% T Bis[2(-chloroethylthio) ethyl] ether~~
~~Chemical formula~~	~~$C_4H_{10}FO_2P$~~	~~$C_{11}H_{26}NO_2PS$~~	~~$C_4H_8Cl_2S_{1-5}$~~	~~$C_4H_8Cl_2S$~~	~~$C_{5-13}H_{10-4}Cl_{2-6}O_{0-20}S_{1-10}$~~
~~Molecular weight~~	~~140.0951~~	~~267.37262~~	~~175.11016~~	~~159.07816~~	~~189.14764~~
~~Vapor specific gravity (air = 1.00)~~	~~4.86~~	~~9.2~~	~~5.4~~	~~5.4~~	~~6.92~~
~~Liquid density at 77° F[1] (lb/ft^3)~~	~~67.965~~	~~62.93~~	~~79.49~~	~~79.49~~	~~79.49~~
~~Freezing point (° F)~~	~~-69~~	~~Below -60~~	~~41 to 57~~	~~58~~	~~32 to 34.3~~
~~Boiling Point (°F)~~	~~316~~	~~572~~	~~437~~	~~423~~	~~442~~
~~Vapor pressure at 77°F[1] (mm Hg)~~	~~2.9~~	~~0.00063~~	~~0.059~~	~~0.11~~	~~0.104~~
~~Flash Point (° F)~~	~~Does not flash~~	~~318~~	~~212~~	~~221~~	~~212~~
~~Viscosity (centistokes) at 77° F[1]~~	~~1.28~~	~~9.96 (pure); may be substantially higher if partially decomposed~~	~~3.95~~	~~3.95~~	~~6.05~~
~~Color~~	~~Clear to straw to amber~~	~~Clear to straw~~	~~Amber-dark brown liquid~~		
~~Odor~~	~~None~~	~~None~~	~~Garlic~~		
~~Special properties~~	~~None~~		~~Permeates ordinary rubber~~		
~~Solubility properties~~	~~Miscible with water and readily soluble in all organic solvents~~	~~Best solvents are dilute mineral acids~~	~~Water (distilled), 0.092 g/100 cc at 72° F; completely soluble in acetone, CCl_4, CH_2Cl, tetrachloroethane, ethyl benzoate, ether)~~		
~~High heating value (Btu/lb at 60° F)~~	~~10073~~	~~15174~~	~~8100~~	~~8500~~	~~9,400~~
~~Physical state~~	~~Viscous liquid~~				

~~[1] Agents H and HT are at 68° F.~~

Table 2-A-1 CHEMICAL AGENT PHYSICAL PROPERTIES

PROPERTY	GB (sarin)	VX	HD (sulfur mustard)	H	HT	GA (tabun)	L (lewisite)
Chemical Name	Isopropyl methyl-phosphono fluoridate	O-ethyl-S[2-(diisopropyl-amino)ethyl] methylphosphonothiolate	Bis(2-chloroethyl) sulfide or 2,2'-dichlorodiethyl sulfide	HD with up to 25% impurities	HD with 40 % T Bis[2(-chloroethylthio) ethyl] ether	Ethyl N,N-dimethylphos phoroamido cyanidate	2-Chlorovinyl arsinedichloride
Chemical Formula	$C_4H_{10}FO_2P$	$C_{11}H_{26}NO_2PS$	$C_4H_8Cl_2S$	$C_4H_8Cl_2S_{1.5}$	$C_{5.15}H_{10.29}Cl_{2.00}O_{0.29}S_{1.29}$	C5H11N2O2P	C2H2AsCl3
Molecular Weight	140.0951	267.37262	159.07816	175.11016	189.14764	162.13	207.32
Vapor Specific Gravity (air=1.00)	4.86	9.2	5.4	5.4	6.92	5.6	7.1
Liquid Density at 77° F[1] (lb/ft³)	67.965	62.93	79.49	79.49	79.49	67.12	117.34
Freezing Point (° F)	-69	Below -60	58	41 to 57	32 to 34.3	-58	-48.5 to -28.8, depending on purity
Boiling Point (°F)	316	572	423	437	442	478	384.8
Vapor Pressure at 77°F[1] (mm Hg)	2.9	0.00063	0.11	0.059	0.104	0.057	34.6
Flash Point (° F)	Does not flash	318	221	212	212	172	Nonflammable
Viscosity (centistokes) at 77° F[1]	1.28	9.96 (pure); may be substantially higher if partially decomposed	3.95	3.95	6.05	2.18	2.257
Color	Clear to straw to amber	Clear to straw	Amber to dark brown liquid			Colorless to Brown	
Odor	None		Garlic			Faintly Fruity	Geranium-like; odorless if pure
Special Properties	None		Permeates ordinary rubber				
Solubility Properties	Miscible with water and readily soluble in all organic solvents	Best solvents are dilute mineral acids	Water (distilled), 0.092 g/100 cc at 72° F; completely soluble in acetone, CCl_4, CH_2Cl, tetrachloroethane, ethylbenzoate, ether)			Readily soluble in common organic solvents	
High Heating Value (Btu/lb at 60° F)	10073	15174	8500	8100	9,400	9740	5000
Physical State	Viscous liquid						

[1] Agents H, HT, and L viscosity measurements are in units of Centipoise measured at 68° F.

Table 2-A-2c
GA Ton Containers Liquid Contents
CHEMICAL AGENT COMPOSITION[1]

Ton Container Number ⇒	D25253	D29813	D35248	D51365	Average
Agent GA CHEMICAL CONSTITUENT					
(GA) Ethyl N,N,-dimethylphosphoro-amidocyanidate **(Wt%)**	38.8	21.1	26.6	19.8	26.6
Triethylphosphate **(Area %)**	< 1.0	1.0	< 1.0	< 1.0	< 1.0
Ethyl methyl N,N-dimethylphosphoroamidate **(Area %)**	2.0	< 1.0	8.0	7.0	5.7
Dimethyl dimethylphosphoramidate **(Area %)**	< 1.0	< 1.0	1.0	1.0	< 1.0
N,N-Dimethyl O,O'-diethyl phosphoramidate **(Area %)**	10	10	20	20	15.0
bis(N,N-dimethyl) O-ethyl phosphorodiamidate **(Area %)**	0.5	6.0	8.0	9.0	5.9
Tetramethyl phosphorocyanidic diamide **(Area %)**	8.0	7.0	10.0	11.0	9.0
Chlorobenzene **(Wt%)**	4.09	11.6	13.1	10.7	9.87
Metals					
Aluminum (mg/kg)	34.9	40.3	30.3	37.3	35.7
Antimony (mg/kg)	0.52	0.23	334	316	162.7
Arsenic (mg/kg)	32.7	29.8	49.6	32.9	36.3
Barium (mg/kg)	1.06	0.62	0.39	0.36	0.6
Beryllium (mg/kg)	< 0.05	0.05	0.05	0.05	0.1
Boron (mg/kg)	109	112	113	95.6	107.4
Cadmium (mg/kg)	< 0.05	0.05	0.05	0.05	0.1
Chromium (mg/kg)	2.13	2.57	1.25	1.29	1.8
Cobalt (mg/kg)	< 0.05	0.05	0.05	0.05	0.1
Copper (mg/kg)	21.6	10.3	0.82	1.72	8.6
Lead (mg/kg)	18.4	18.7	0.27	0.77	9.5
Manganese (mg/kg)	1.25	1.32	0.13	0.21	0.7
Mercury (mg/kg)	4.1	0.49	10.4	1.81	4.2
Nickel (mg/kg)	0.68	0.7	0.09	0.19	0.4
Selenium (mg/kg)	< 0.05	0.05	0.07	0.09	0.1
Silver (mg/kg)	< 0.05	0.05	0.12	0.12	0.1
Thallium (mg/kg)	< 0.05	0.05	0.05	0.05	0.1
Tin (mg/kg)	3.04	0.25	0.27	6.75	2.6
Vanadium (mg/kg)	9.58	11.5	13.9	11	11.5
Zinc (mg/kg)	62.7	43.1	28.3	36.7	42.7

[1]This table contains the analytical data for all four Agent GA Ton Containers stored at DCD.

Table 2-A-2d
Lewisite Ton Containers Liquid Contents
CHEMICAL AGENT COMPOSITION[1]

Agent Lewisite CHEMICAL CONSTITUENT (Area %)	Average	Standard Deviation	Maximum Value	Minimum Value
(2-Chlorovinyl) dichloroarsine (Lewisite L1)	76.9	2.1	80.4	74.3
bis(2-Chlorovinyl) chloroarsine (Lewisite L2)	14.9	1.0	16.4	13.0
tris(2-Chlorovinyl)arsine (Lewisite L3)	0.73	0.14	0.99	ND
$AsCl_3$	1.3	0.34	1.9	ND
Metals				
Aluminum (mg/kg)	34.3	4.25	44	29.8
Antimony (mg/kg)	313	16.0	338	292
Arsenic (Wt%)	**32.1**	**1.11**	**33.5**	**30.5**
Barium (mg/kg)	0.376	0.11	0.59	0.16
Beryllium (mg/kg)	< 0.06	ND	0.10	< 0.05
Boron (mg/kg)	98.1	11.0	113	78.8
Cadmium (mg/kg)	< 0.06	ND	0.10	< 0.05
Chromium (mg/kg)	1.34	0.15	1.59	1.17
Cobalt (mg/kg)	< 0.05	ND	< 0.05	< 0.05
Copper (mg/kg)	0.94	0.85	2.35	0.26
Lead (mg/kg)	0.32	0.20	0.87	0.18
Manganese (mg/kg)	0.18	0.07	0.35	0.11
Mercury (mg/kg)	192	136	528	48.4
Nickel (mg/kg)	0.22	0.23	0.84	0.06
Selenium (mg/kg)	< 0.68	2.00	6.36	0.05
Silver (mg/kg)	0.14	0.08	0.35	0.1
Thallium (mg/kg)	< 0.05	ND	< 0.05	< 0.05
Tin (mg/kg)	< 0.39	0.26	0.95	< 0.25
Vanadium (mg/kg)	14.1	1.6	16.9	11.8
Zinc (mg/kg)	44.4	13.2	72	30.8

[1]This table includes data from sample collected from all 10 Lewisite Ton Containers stored at DCD

Table 2-A-2e
Lewisite Ton Containers Solid Contents
COMPOSITION[1]

		Average	Maximum	Minimum
Metals (mg/kg)				
	Aluminum	100	207	54.5
	Antimony	2,685	3,450	1,870
	Arsenic	165,360	211,000	99,600
	Barium	0.66	1.77	0.31
	Beryllium	0.15	0.36	0.06
	Boron	167	194	127
	Cadmium	0.30	0.73	0.1
	Chromium	24.3	95.8	4.8
	Cobalt	0.94	3.35	0.28
	Copper	347	1,120	93.8
	Iron	11,280	39,100	3,020
	Lead	519	2,600	25.3
	Manganese	47.7	186	12.7
	Mercury	335,299	493,000	131,000
	Nickel	14.3	47.5	3.17
	Selenium	6.57	10.2	3.29
	Silver	0.14	0.35	0.08
	Thallium	0.50	0.66	0.25
	Tin	11.67	16.6	7.36
	Vanadium	19.2	22.3	16.1
	Zinc	438	1,194	223

[1]This table includes data from sample collected from all 10 Lewisite Ton Containers stored at DCD

TABLE 2-B-7
Metals in Munitions[1] (Metals with Feed Rate Limitations - Module V)

Metals[1]	Sb	As	Ba	Be	Cd	Cr[3]	Pb	Hg	Ag	Tl
Ton Containers, Agent GA										
TOTAL EMBEDDED METALS[2,4] (pounds)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
TOTAL NON-EMBEDDED METALS (pounds)	NR	0.036	0.6393	NR	0.3289	0.1867	2.8533	0.01	0.0001	0.0001
Metals in Fusible Plugs[2,3]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals in Paint[2,4]	NR	NR	0.6378	NR	0.3288	0.1841	2.8346	NR	NR	NR
Metals in Liquid Agent[2,5]	0.334	0.05	0.001	0.0001	0.0001	0.0026	0.0187	0.01	0.0001	0.0001
Metals in Solid Agent Residue[2]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Notes:

Notes:

1. The metals within the munitions' metal are considered to be fixed (embedded, inert) and will not vaporize at furnace temperatures. The values are not included in the Non-Embedded Metals totals.
2. NR – not reported, no information provided. For metals in Solid Agent Residue row, there were no solid residues in the GA Ton Containers to sample.
3. The fusible plug port has been fitted with a non-fusible solid brass plug in place of the original lead-containing fusible plugs.
4. The non-embedded metals values attributed to the munitions paint is a function of the munitions' surface areas: Ton Container 65.75 ft^2.
5. Based on a ton container filled with 1,000 pounds GA, with entire ton container fill being liquid. Metals Concentrations are tabulated in Table 2-A-2. Maximum values were used to develop the information included in this table.

TABLE 2-B-8
Metals in Munitions[1] (Other Metals of Interest)

Metals[1]	Se	Ni	V	Al	B	Co	Cu	Mn	Sn	Zn
Ton Containers, Agent GA										
TOTAL EMBEDDED METALS (pounds)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
TOTAL NON-EMBEDDED METALS (pounds)	0.0001	0.3294	0.014	0.0403	0.113	0.0001	0.021	0.001	0.0068	0.0627
Metals in Fusible Plugs[2,3]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals in Paint[2,4]	NR	0.3288	NR	NR	NR	NR	NR	NR	NR	NR
Metals in Liquid Agent[2,5]	0.0001	0.0007	0.014	0.0403	0.113	0.0001	0.021	0.001	0.0068	0.0627
Metals in Solid Agent Residue[2]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Notes:
1. The metals within the munitions' metal are considered to be fixed (embedded, inert) and will not vaporize at furnace temperatures. The values are not included in the Non-Embedded Metals totals.
2. NR – not reported, no information provided. For metals in Solid Agent Residue row, there were no solid residues in the GA Ton Containers to sample.
3. The fusible plug port has been filled with a non-fusible solid brass plug in place of the original lead-containing fusible plugs.
4. The non-embedded metals values attributed to the munitions paint is a function of the munitions' surface areas: Ton Container 65.75 ft^2.
5. Based on a ton container filled with 1,000 pounds GA, with entire ton container fill being liquid. Metals Concentrations are tabulated in Table 2-A-2. Maximum values were used to develop the information included in this table.

TABLE 2-B-9
Metals in Munitions[1] (Metals with Feed Rate Limitations - Module V)

Metals[2]	Sb	As	Ba	Be	Cd	Cr[3]	Pb	Hg	Ag	Tl
Ton Containers, Agent Lewisite										
TOTAL EMBEDDED METALS[2,4] (pounds)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
TOTAL NON-EMBEDDED METALS (pounds)	0.845	837.5	0.6393	0.0003	0.3290	0.1881	2.8372	1.32	0.0009	0.0001
Metals in Fusible Plugs[4]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals in Paint[5]	NR	NR	0.6378	NR	0.3288	0.1841	2.835	NR	NR	NR
Metals in Liquid Agent[6]	0.845	837.5	0.0015	0.0003	0.0003	0.0040	0.0022	1.32	0.0009	0.0001
Metals in Solid Agent Residue[6]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Notes:
1. NR – not reported, no information provided. For Metals in Liquid Agent row, metals marked with NR were not detected, however detection limit was not specified.
2. The metals within the munitions' metal are considered to be fixed (embedded, inert) and will not vaporize at furnace temperatures. The values are not included in the Non-Embedded Metals totals.
3. No distinction between different chromium valences (e.g., identification of hexavalent chromium) can be made from the available information.
4. The fusible plug port has been fitted with a non-fusible solid brass plug in place of the original lead-containing fusible plugs.
5. The non-embedded metals values attributed to the munitions paint is a function of the munitions' surface areas: Ton Container 65.75 ft^2.
6. Based on a ton container filled with 2,500 pounds Lewisite, with entire ton container fill being liquid. Metals Concentrations are tabulated in Table 2-A-2. Maximum values were used to develop the information included in this table. Solid phase metal contents are not considered since the solid phase will not be fed to the incinerator.

TABLE 2-B-10
Metals in Munitions[1] (Other Metals of Interest)

Metals[1]	Se	Ni	V	Al	B	Co	Cu	Mn	Sn	Zn
Ton Containers, Agent Lewisite										
TOTAL EMBEDDED METALS (pounds)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
TOTAL NON-EMBEDDED METALS (pounds)	0.0159	0.3309	0.0423	0.1100	0.2825	0.0001	0.0059	0.0009	0.002	0.18
Metals in Fusible Plugs[2,3]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals in Paint[2,4]	NR	0.3288	NR	NR	NR	NR	NR	NR	NR	NR
Metals in Liquid Agent[2,5]	0.0159	0.0021	0.0423	0.1100	0.2825	0.0001	0.0059	0.0009	0.002	0.18
Metals in Solid Agent Residue[2,5]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Notes:

1. The metals within the munitions' metal are considered to be fixed (embedded, inert) and will not vaporize at furnace temperatures. The values are not included in the Non-Embedded Metals totals.
2. NR – not reported, no information provided. For Metals in Liquid Agent row, metals marked with NR were not detected, however detection limit was not specified.
3. The fusible plug port has been fitted with a non-fusible solid brass plug in place of the original lead-containing fusible plugs.
4. The non-embedded metals values attributed to the munitions paint is a function of the munitions' surface areas: Ton Container 65.75 ft^2.
5. Based on a ton container filled with 2,500 pounds Lewisite, with entire ton container fill being liquid. Metals Concentrations are tabulated in Table 2-A-2. Maximum values were used to develop the information included in this table. Solid phase metal contents are not considered since the solid phase will not be fed to the incinerator.

~~Table 2-C-1~~
~~ENERGETIC/AGENT NOMINAL WEIGHT~~
~~FOR~~
~~CHEMICAL AGENT MUNITIONS/BULK CONTAINERS~~

~~MUNITION~~	~~MODEL /AGENT~~	~~DIMENSIONS~~			~~AGENT~~		~~BURSTER~~			~~PROPELLANT~~		~~FUSE MODEL~~	~~OTHER ENERGETIC COMPONENTS~~
		~~DIAMETER~~	~~LENGTH (INCHES)~~	~~WEIGHT (LBS)~~	~~TYPE~~	~~WEIGHT (LBS)~~	~~MODEL~~	~~EXPLOSIVE~~	~~WEIGHT (LBS)~~	~~MODEL~~	~~WEIGHT (LBS)~~		
~~4.2-inch Mortar~~	~~M2~~	~~4.2 inch~~	~~21.0~~	~~24.67~~ ~~24.47~~	~~HD~~ ~~HT~~	~~6.0~~ ~~5.8~~	~~M22~~	~~Tetryl~~	~~0.14~~	~~-~~	~~-~~	~~M8~~	~~M2 Primer~~
~~155 mm Projectile~~	~~M104~~ ~~M110~~	~~155 mm~~	~~26.8~~	~~98.9~~	~~H~~	~~11.7~~	~~M6~~	~~Tetrytol~~	~~0.414~~	~~—~~	~~—~~	~~—~~	
~~Ton Containers~~	~~Agent HD~~	~~30.1~~	~~85.1~~	~~3,400~~	~~HD~~	~~1,800~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~

~~NOTES:~~
~~NA = Information not available;~~
~~H, HD, and HT = Mustard~~
~~TNT = 2,4,6-trinitrotoluene; $CH_3C_6H_2(NO_2)_3$.~~
~~Tetryl = 2,4,6-trinitrophenylmethylnitramine; $(NO_2)_3C_6H_2N(NO_2)CH_3$.~~
~~Tetrytol = 70% Tetryl, 30% TNT~~

Table 2-C-1
ENERGETIC/AGENT NOMINAL WEIGHT
FOR
CHEMICAL AGENT MUNITIONS/BULK CONTAINERS

MUNITION	MODEL /AGENT	DIMENSIONS			AGENT		BURSTER			PROPELLANT		FUSE MODEL	OTHER ENERGETIC COMPONENTS
		DIAMETER	LENGTH (INCHES)	WEIGHT (LBS)	TYPE	WEIGHT (LBS)	MODEL	EXPLOSIVE	WEIGHT (LBS)	MODEL	WEIGHT (LBS)		
4.2-inch Mortar	M2	4.2 inch	21.0	24.67	HD	6.0	M22	Tetryl	0.14	-	-	M8	M2 Primer
				24.47	HT	5.8							
155-mm Projectile	M104 / M110	155 mm	26.8	98.9	H	11.7	M6	Tetrytol	0.414	--	--	--	
Ton Containers	Agent HD	30.1	85.1	3,400	HD	1,800	--	--	--	--	--	--	--
Ton Containers	Agent GA	30.1	85.1	3,400	GA	1,000	--	--	--	--	--	--	--
Ton Containers	Agent Lewisite	30.1	85.1	3,400	L	2,500	--	--	--	--	--	--	--

NOTES:
NA = Information not available;
H, HD, and HT = Mustard
TNT = 2,4,6-trinitrotoluene; $CH_3C_6H_2(NO_2)_3$
Tetryl = 2,4,6-trinitrophenylmethylnitramine: $(NO_2)_3C_6H_2N(NO_2)CH_3$
Tetrytol = 70% Tetryl, 30% TNT

ATTACHMENT 3

SAMPLING, ANALYTICAL, AND QA/QC PROCEDURES

Consisting of:

- U.S. Army Chemical Materials Agency (CMA) Programmatic Laboratory and Monitoring Quality Assurance Plan (LMQAP), Final, June 2004, incorporated by reference.
- Laboratory Quality Control Plan, CDRL L005/CDRL 024, Revision 6, Change 6 January 2008, incorporated by reference.

Note, documents to be provided before permit operations begin

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4.6 WARNING SIGNS

LIST OF ACRONYMS

ATLIC	Area 10 Liquid Incinerator
CFR	Code of Federal Regulations
DCD	Deseret Chemical Depot
GA	Tabun; dimethylphosphoramidocyanidic acid ethyl ester
L	Lewisite; dichloro(2-chlorovinyl)arsine
TOCDF	Tooele Chemical Agent Disposal Facility

4.1 SECURITY [R315-3-2.5(b)(4); R315-8-2.5]

4.1.1 Security at the Deseret Chemical Depot (DCD) located Tooele Chemical Agent Disposal ~~F~~Facility (TOCDF) and separate, but TOCDF-operated, Area 10 Liquid Incinerator (ATLIC) at Igloo 1639 shall meet the criteria and standards of the Department of Army Regulation 190-59, "Chemical Agent Security Program." This regulation specifies criteria and standards for the storage, handling, and movement of chemical surety materiel. It specifically describes the contents of physical security plans that are required for installations that have a chemical storage mission, requirements for perimeter security and storage structure protection systems, security procedures, requirements for security forces, and standards for physical security. The stipulations of AR 190-59 are more stringent than the security requirements set forth in R315-8-2.5.

4.1.2 ~~4.1.2~~ In addition to the security procedures in effect at the ~~facility~~TOCDF and ATLIC, the DCD installation provides overall security. The Chemical Surety Restricted Area (i.e., Area 10, which includes the ATLIC Igloo 1639), located adjacent to the facility has a security system that complies with AR 190-59. All security systems are in full effect during chemical demilitarization operations. The unclassified portion of the various security systems is discussed below. A map depicting the location of fencing, gates, and warning signs for the ~~Tooele Chemical Agent Disposal Facility (~~TOCDF~~)~~ and Area 10, and the ~~entire~~ perimeter of the Deseret Chemical Depot (DCD) is shown in drawing TE-16-C-2, which is located in Attachment 11 (General Facility Drawings) of this Permit. These systems will prevent unknown~~ing~~ entry into the facility and minimize the possibility for the unauthorized entry of persons or livestock onto the facility by use of the following procedures and equipment: (1) fencing around the entire facility perimeter; (2) 24-hours-per-day, seven-days-per-week surveillance by armed patrols; (3) warning signs posted along perimeter fences to discourage unknowing or unauthorized entry; (4) entry limited to one gate, staffed by armed security personnel; (5) access limited to persons and vehicles displaying appropriate identification badges and vehicle placards; (6) two-way radio communication; (7) telephone communications available at selected facilities; and (8) security lighting provided at key locations. Drawing EG-22-G-8221 depicts a more detailed drawing of the ATLIC within Area 10.

4.1.3 The TOCDF-operated ATLIC is inside the DCD-operated and –secured Area 10; security for Area 10 is provided by DCD and covered by the DCD RCRA Permit.

4.2 GENERAL SECURITY PROCEDURES AND EQUIPMENT [R315-3-2.5(b)(4), R315-8-2.5(a)]

4.2.1 The security provisions for the TOCDF are in addition to that of the ~~Deseret Chemical Depot (~~DCD~~)~~ security provisions. The ATLIC is located within the DCD Area 10 and is covered by the D~~d~~CD measures for securing site equipment and surety material. The following procedures and equipment at the Tooele Chemical Agent Disposal Facility (TOCDF) prevent unknown~~ing~~ entry into the facility and minimize the possibility for unauthorized entry of persons or livestock onto the facility: (1) fencing surrounding the site; (2) 24-hours-per-day, seven-days-per-week surveillance by armed patrols; (3) warning signs posted at the area perimeter; (4) routine entry to the facility limited to one gate, staffed by armed security personnel; (5) routine access limited to persons displaying appropriate identification badges and vehicle passes issued only by the Security Office; (6) two-way radio communication; (7) security lighting to illuminate the entire facility. DCD Area 10 Igloos 1631, 1632, ~~and~~ 1633, and 1639 are not located within the TOCDF

proper, but are managed by TOCDF. Igloo 1631 contains the Autoclave Subpart X Treatment Unit. Igloo 1632 contains the Drum Ventilation System and Drum Ventilation Sorting Room System Subpart X Treatment Units and is also permitted as a container storage unit. Igloo 1633 is a permitted container storage unit. ~~And~~ Igloo 1639 contains the tabun (GA) nerve agent and Lewisite (L) blister agent incineration facility which is referred to as the Area 10 Liquid Incinerator (ATLIC).

4.3 TWENTY-FOUR HOUR SURVEILLANCE SYSTEM [R315-8-2.5(b)(1)]

4.3.1 Continuous surveillance of the TOCDF and ATLIC is accomplished by security patrols. Overall administration of security personnel is performed by the Chief. DCD Security Office. The TOCDF and Area 10 (where the ATLIC, Igloo 1639, is located) perimeters are ~~is~~ monitored by security forces.

4.3.2 Each patrol is radio equipped. Typical duties required of patrol members include:

4.3.2.1 Check for possible intrusion or security violations.

4.3.2.2 Check the security of the buildings within the patrol area.

4.3.2.3 Check the physical integrity of perimeter barriers.

4.3.2.4 Challenge persons within the patrol area as appropriate.

4.3.2.5 Report all incidents and check points.

4.3.2.6 Respond to contingency calls.

4.3.2.7 Perform specific duties as assigned.

4.3.3 Each patrol is equipped with required protective equipment. Limited first aid supplies, fire extinguisher(s), and lights are available. All patrols are armed.

4.4 BARRIER [R315-8-2.5(b)(2)(i)]

4.4.1 The TOCDF and Area 10 are surrounded by chain-link security fences. The perimeters are~~is~~ completely lighted. The fences are maintained in good repair.

4.5 MEANS TO CONTROL ENTRY [R315-8-2.5(b)(2)(ii)]

4.5.1 Visitor access to the ~~facility~~ TOCDF and Area 10, within their separate, fenced ~~perimeter~~ perimeters, is controlled by ~~a~~ separate 24-hour guarded gates. Visitors are accompanied at all times during their visit to the facility and are subject to security checks.

4.5.2 For those individuals who routinely work in the ~~facility~~ TOCDF or Area 10, picture identity badges and other forms of identification are required at the entry control point. These badges are issued by the DCD to each individual.

4.5.3 A worker must be current in medical screening and training requirements as well as cleared through appropriate security programs.

4.5.4 Within these secure facilities~~y~~. certain areas have been designated as Exclusion Areas. Access to Exclusion Areas is restricted to authorized personnel who have the appropriate training. Personnel within Exclusion Areas will always work under the "Two-Person Concept" or buddy system in which each worker remains in visual contact with his partner at all times. Once personnel have entered the facility. access to Exclusion areas is controlled.

4.5.5 Pedestrian access to the ~~facility~~ TOCDF or Area 10 is controlled by a continuously guarded turnstile system at each facility. The individual may be searched in his or her person and effects as determined by the guards. Upon acceptance of identification. the individual can pass through. All the gate guards are armed.

4.5.6 Vehicle access to the ~~facility~~ TOCDF and ATLIC are~~is~~ controlled by a continuously guarded gate ate each area. When a vehicle requires entry to ~~the~~ either facility, all occupants except the driver must exit the vehicle and enter through the turnstile system. The vehicle will be thoroughly searched by an armed guard.

4.5.7 Short-term access can be authorized. An authorized escort accompanies these personnel during their time within ~~the~~ either facility.

4.6 WARNING SIGNS [R315-8-2.5(c)]

4.6.1 Signs warning that the areas are ~~is~~ restricted and dangerous. and that unauthorized entry is illegal, are posted near all facility access gates and around the perimeter. These signs are easily visible at a distance of 25 feet.

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5-20 Environmental Inspection for the Munitions Demilitarization Building Demilitarization & Material Handling Systems

5-21 Environmental Inspection for the Agent Collection Tanks ACS-TANK-101, ACS-TANK-102 and ACS Tank Secondary Containment System

5-22 Environmental Inspection for the Spent Decontamination Solution Tanks SDS-TANK-101, SDS-TANK-102, SDS-TANK-103 and SDS Tank Secondary Containment System

5-23 Environmental Inspection for the Brine Reduction Area Surge Tanks BRA-TANK-101, BRA-TANK-102, BRA-TANK-201, BRA-TANK-202 & Secondary Containment System

5-24 Environmental Inspection for the Igloo 1632 and 1633 Container Storage Areas and Secondary Containment Systems

5-25 Environmental Inspection for the Brine Reduction Area Pollution Abatement System

5-26 Environmental Inspection for the TOCDF Munitions Demilitarization Building Ventilation Carbon Filter System

5-27 Safety and Emergency Equipment Inspection for Emergency Response Equipment (For all EG&G Operated Facilities)

5-28 Safety and Emergency Equipment Inspection for the TOCDF Emergency Generators, Security, Hazard Communication, & Fire Protection Systems

5-29 Environmental Inspection for Igloo 1631 Autoclave and the Igloo Carbon Adsorption Filtration System

5-30 Environmental Inspection for the Igloo 1632 Drum Ventilation System (DVS) and Drum Ventilation System Sorting Room (DVSSR) and the Igloo Carbon Adsorption Filtration System

5-31 Environmental Inspection for the ATLIC Ton Container Glove-boxes

5-32 Environmental Inspection for the ATLIC LIC Primary and Secondary Chambers

5-33 Environmental Inspection for the ATLIC LIC Pollution Abatement Systems

5-34 *Inspection for the ATLIC Agent Monitors*

5-35 Environmental Inspection for the ATLIC Ventilation Carbon Filter System

5-36 Safety and Emergency Equipment Inspection for the ATLIC Emergency Generators, Security, Hazard Communication, & Fire Protection Systems

5-37 Environmental Inspection for the AFLIC TOX Area Tanks: NSF-Tank-8514, LCS-Tank-8516, LCS-Tank-8511, SDS-Tank-8523, LCS-Tank-8534 and the tank Secondary Containment System

LIST OF ACRONYMS

ACAMS	Automatic Continuous Air Monitoring System
ACS	Agent Collection System
ATLIC	Area 10 Liquid Incinerator
AWFCO	Automatic Waste Feed Cut-Off
BDS	Bulk Drain Station
BRA	Brine Reduction Area
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
CHB	Container Handling Building
DAAMS	Depot Area Air Monitoring System
DCC	Document Control Center
DFS	Deactivation Furnace System
DSHW	Division of Solid and Hazardous Waste
DVS	Drum Ventilation System
DVSSR	Drum Ventilation System Sorting Room
ECV	Explosive Containment Room Vestibule
HEPA	High Efficiency Particulate Air
HWMU	Hazardous Waste Management Unit
ICU	Intermittent Collection Unit
LIC	Liquid Incinerator
MDB	Munitions Demilitarization Building
MDM	Multiposition Demilitarization Machine
MMS	Multi-Munitions Handling System
MPF	Metal Parts Furnace
NFPA	National Fire Protection Association
NFC	National Fire Code
ONC	On-Site Container
PAS	Pollution Abatement System
PDARS	Process Data Acquisition and Recording System
PHS	Projectile Handling System
PMD	Projectile/Mortar Disassembly Machine
RCRA	Resource Conservation and Recovery Act
RHA	Residue Handling Area
SDS	Spent Decon Solution
TMA	Toxic Maintenance Area
TOCDF	Tooele Chemical Agent Disposal Facility
UPA	Unpack Area
UPMC	Upper Munitions Corridor
UPS	Uninterruptible Power Supply

TABLE 5-1
HAZARDOUS WASTE MANAGEMENT UNIT INSPECTION SCHEDULE & METHODS OF INSPECTION

HAZARDOUS WASTE MANAGEMENT UNIT	INSPECTION FREQUENCY REGULATION	LOCATION	AGENT VENTILATION CATEGORY[1]	FREQUENCY INSPECTION METHOD[2]
INCINERATORS				
Liquid Incinerator #1	Daily R315-8-15.7(b), (c)	Inside MDB	A/B	Daily - Visual Inspection performed using closed circuit television and process data observed from control screens. Monthly - Physical Visual Inspection
Liquid Incinerator #2			A/B	
Area 10 Liquid Incinerator (ATLIC) LIC		ATLIC LIC Room	A/B	
Metal Parts Furnace		Inside MDB	B	
Deactivation Furnace System			B	
INCINERATOR ANCILLARY EQUIPMENT				
Incinerator Process Control/RCRA Compliance Instrumentation	Based on Frequency stated in Calibration Plan (Attachment 6)	Not Applicable	Not Applicable	Calibration - Calibration Frequency based on instrument type
Demil Machines/Conveyors	Daily R315-8-15.7(b)	Inside MDB	A, A/B	Daily - Visual Inspection performed using closed circuit television and process data observed from control screens
Pollution Abatement Systems	Daily R315-8-15.7(b)	Outside MDB	D	Daily - Physical Visual Inspection
		Inside ATLIC Environmental Control System		
STORAGE/TREATMENT UNITS				
Agent Collection System (ACS) ACS-Tank-101 ACS-Tank-102	*Daily* R315-8-10[40 CFR 264.195(a), (b)]	*Inside MDB*	A	*Daily - Physical visual* inspection or Visual Inspection performed using closed circuit television and process data observed from control screens
NSF-Tank-8514 LCS-Tank-8516 LCS-Tank-8511 SDS-Tank-8523 LCS-Tank-8534		ATLIC TOX Area		
Spent Decon Solution (SDS) SDS-Tank-101 SDS-Tank-102 SDS-Tank-103		Inside MDB		Weekly - Physical Visual Inspection
SDS Ancillary Tank Systems (24-Hour ICU and Secondary Containment Sumps)		Inside MDB	A, A/B, C	Daily - Visual Inspection performed by use of the sump level indicators
		ATLIC TOX Area for equip associated with SDS-Tank-8523		

TABLE 5-1
HAZARDOUS WASTE MANAGEMENT UNIT INSPECTION SCHEDULE & METHODS OF INSPECTION

HAZARDOUS WASTE MANAGEMENT UNIT	INSPECTION FREQUENCY REGULATION	LOCATION	AGENT VENTILATION CATEGORY[1]	FREQUENCY INSPECTION METHOD[2]
STORAGE/TREATMENT UNITS				
Brine Reduction Area (BRA) BRA-Tank-101 BRA-Tank-102 BRA-Tank-201 BRA-Tank-202		Outside MDB	D	Daily - Physical Visual Inspection Cathodic Protection – Annually - Confirm proper operation *Every Other Month* – Inspect/Test Sources of Impressed Current
Autoclave & Igloo Carbon Adsorption Filtration System	Daily & Weekly R315-8-16 [40 CFR 264.602, 264.15(b)(4), 264.1033, 264.1087]	DCD Area 10 Igloo 1631 and Adjacent Carbon System	D	Daily – Physical Visual Inspection Weekly – Physical Visual Inspection
ATLIC Ton Container Glove-box Carbon Adsorption Filtration System	Daily & Weekly R315-8-16 [40 CFR 264.602, 264.15(b)(4), 264.1033, 264.1087]	ATLIC Processing Bay	D	Daily – Physical Visual Inspection Weekly – Physical Visual Inspection
Drum Ventilation System DVS Enclosure DVS-101 DVS Enclosure DVS-102 DVSSR Igloo Carbon Adsorption Filtration System	Daily & Weekly R315-8-16 [40 CFR 264.602, 264.15(b)(4), 264.1033, 264.1087]	DCD Area 10 Igloo 1632 and Adjacent Carbon Filter System	D	Daily – Physical Visual Inspection Weekly – Physical Visual Inspection
BRA ANCILLARY EQUIPMENT				
Pollution Abatement System	Daily R315-8-2.6	Outside MDB	D	Daily - Physical Visual Inspection

[1] Agent Ventilation Categories are determined based on the probability of agent contamination. The ranking system scales from A (highest probability) to E (no probability). More ventilation air is required to be moved through areas as the probability of agent contamination increases. The level of personal protective equipment also increases as the probability of agent contamination increases.

[2] Inspections performed by the control room operators through the use of closed circuit television cameras and process data acquisition systems are referred to as "Visual Inspections". Inspections performed by personnel present at the actual location are referred to as "Physical Visual Inspections."

5.1.3 Table 5-2 includes additional inspections performed on systems supporting the treatment of hazardous waste at the TOCDF and ATLIC. These inspections are intended to prevent and minimize releases of hazardous waste and to ensure that emergency equipment is available and functional.

Table 5-2 ~~TOCDF~~ SUPPORT SYSTEM INSPECTIONS		
TOCDF INSPECTIONS		
SYSTEM/ITEM INSPECTED	**INSPECTIONFREQUENCY REGULATION**	**METHOD OF INSPECTION**
Hazardous Waste Load/Unload Areas	Daily (when in use) R315-8-2.6(b)(4)	Physical Visual Inspection
Agent Monitors	Daily R315-8-2.6(b)(4)	Challenge
MDB RCRA Permitted Sumps (Category C)	Daily	Physical Visual Inspection
MDB RCRA Permitted Sumps (Category B and A/B)	Daily	Visual Inspection performed by use of sump level indicators
MDB Ventilation Carbon Filter System	Daily	Visual Inspection performed using process data observed from control screens.
Safety/Emergency Equipment Inspections		
Emergency Generators	Monthly R315-8-2.6(b)(1)	Operational Test
Uninterruptible Power Supply		Physical Visual Inspection
Security		Physical Visual Inspection
Emergency Power System	Annually R315-8-2.6(b)(1)	Operational Test
Evacuation Notification System	Weekly R315-8-2.6(b)(1)	Operational Test
Fire Protection Systems	Semi-annually & Annually R315-8-2.6(b)(1)	Visual & Operational Tests
Hazmat Van and Decon Trailer	Monthly R315-8-2.6(b)(1)	Physical Visual Inspection
ATLIC INSPECTIONS		
Agent Monitors	Daily R315-8-2.6(b)(4)	Challenge
ATLIC RCRA Permitted Sumps (LIC Room, Entry Airlock A, B and TOX Area Room)	Daily	Visual Inspection performed by use of sump level indicators
ATLIC Ventilation Carbon Filter System	Daily	Visual Inspection performed using process data observed from control screens.
Safety/Emergency Equipment Inspections		
Emergency Generators	Monthly R315-8-2.6(b)(1)	Operational Test
Uninterruptible Power Supply		Physical Visual Inspection
Security		Physical Visual Inspection
Emergency Power System	Annually R315-8-2.6(b)(1)	Operational Test
Fire Protection Systems	Semi-annually & Annually R315-8-2.6(b)(1)	Visual & Operational Tests

5.2 METHOD OF INSPECTION BASIS

5.2.1 The method of inspection is based on the location of the HWMU relative to the Munitions Demilitarization Building (MDB). Due to the extreme toxicity of the chemical agent, the TOCDF is designed to minimize the number of times workers have the potential of being exposed to chemical agents. This is done primarily by the extensive application of automated equipment, closed circuit television cameras, and distributed Process Data Acquisition and Recording System (PDARS) in areas where the probability of chemical agent contamination is high. This criteria is also used in determining the inspection methods for the ATLIC facility.

5.2.2 To lessen the potential of chemical agent exposure to workers, the inspections of HWMUs located in areas having a high probability of chemical agent contamination (either airborne or liquid) are performed by control room operators through the use of closed circuit television cameras and the observations of critical process parameters displayed on the control room monitors (i.e. "Visual Inspections," see last column of Table 5-1).

5.2.3 Areas where the probability of chemical agent contamination is low are inspected by personnel present at the physical location (i.e. "Physical Inspections," see last column of Table 5-1).

5.3 INSPECTIONS

5.3.1 The following describes the inspections to be performed at each HWMU and support system by category. Inspections specific to each HWMU and support system listed in the first column of Table 5-1 and Table 5-2 can be found in Tables 5-4 through 5-29[1] of this plan. The inspection logs used to record the results of each inspection can be found in the Inspection Log Sheet Attachment. Inspection log sheets shall be filled out completely and accurately by inspectors.

5.3.1.1 Container Storage [R315-8-9.5]

5.3.1.1.1 Chemical munitions and bulk containers of chemical agents are stored in the CHB prior to being transferred to the MDB to begin the demilitarization process. While stored in the CHB, munitions and bulk containers are kept in sealed overpacks. The type of munition overpack used is an On-Site Container (ONC). Likewise, chemical munitions and bulk containers of chemical agents are stored in the UPA, Explosive Containment Room Vestibule (ECV), and the Upstairs Munitions Corridor (UPMC), and the TMA Airlock/Decon Area. While stored in the UPA, non-leaking munitions and bulk containers shall be placed on secondary containment pallets or kept in the overpacks, described above, which provide secondary containment.

5.3.1.1.2 Containers with site-generated waste are stored in the S-2 Warehouse and DCD Igloos 1632 and 1633. While stored in the S-2 Warehouse and Igloos 1632 and 1633, the containers shall remain closed except when adding or removing waste (includes periodically monitoring the vapor space within the container).

[1]Tables 5-4 through 5-28 are located at the end of this plan.

5.3.1.1.3 Containerized waste and agent-contaminated equipment and parts are stored in the TMA Container Storage Area.

5.3.1.1.4 The overpacks provide a level of containment in addition to the CHB and UPA storage area base because they are liquid tight; have the capacity to contain the entire volume of the agent fill of the munitions and bulk containers stored inside them; and are not opened while they are in the CHB.[2] Overpacks used in the CHB shall also be vapor tight.

5.3.1.1.5 The air inside all overpacks stored in the CHB and in the UPA for more than seven days is sampled and analyzed on the seventh day and every seventh day thereafter by an agent monitor. The results of the sample analysis are available before the end of the eighth day the overpack is in storage.

5.3.1.1.6 Overpacks found to be containing munitions or bulk containers that are leaking are processed on a priority basis or moved to a permitted storage area.

5.3.1.1.7 ONCs are subjected to an integrity test to determine their ability to contain vapors prior to being placed into service and on an annual basis thereafter.

5.3.1.1.8 The storage base for each storage area (CHB, ECV, and UPMC) and the storage base in the Category A section of the TMA are inspected weekly for chips, cracks, and gaps in the concrete or concrete sealant. When used for container storage, the storage base of the TMA Airlock/Decon Area is inspected weekly for chips, cracks, and gaps in the concrete or concrete sealant. The containers and secondary containment pallets in the S-2 Warehouse, Igloos 1632 and 1633 and UPA are inspected weekly for rupture, corrosion, and released material.

5.3.1.2 **Incinerators [R315-8-15.7(b); R315-8-15.7(c)]**

5.3.1.2.1 The incinerators listed in Table 5-1 are located in individual rooms within the MDB and the ATLIC LIC Room. Because the demilitarization process occurring inside these areas ~~MDB~~ is operated remotely in order to lessen the potential exposure of workers to chemical agent, the equipment inside the MDB and ATLIC LIC Room is provided with instrumentation to allow the control room operators sufficient process information to determine the performance of the equipment. By combining the visual observations made through the remote control closed circuit television cameras and process data displayed on the control screens, the control room operators can monitor the performance of the incinerators to a sufficient degree to prevent releases of hazardous waste to the environment.

5.3.1.2.2 During incinerator operation, the possibility of agent contamination within the rooms prevents unplanned access by personnel.

5.3.1.2.3 Physical entry to the incinerator rooms does not occur on a regular predetermined basis because shutdowns of the incinerators are planned on an as-needed basis (i.e. irregular frequency). Process control/process parameter sensors and remote controlled closed circuit television cameras throughout the MDB and ATLIC LIC Room are used to

[2]Although the overpacks are not opened in the CHB, they are opened in the UPA located in the transition area between the CHB and the MDB.

conduct inspection in areas where unplanned physical entry is prevented because of agent contamination and/or high temperatures.

5.3.1.2.4 The daily visual inspections of LIC 1, LIC 2, MPF, ~~and~~ DFS and ATLIC LIC primary chambers, waste feed systems, combustion air blowers, and fuel systems are conducted remotely using closed circuit television cameras and process data displayed on the control room monitors.

5.3.1.2.5 The daily inspections conducted on the secondary chambers of LIC 1, ~~and~~ LIC 2 and ATLIC LIC are performed as a physical visual inspection. The temperatures of the rooms and the expected degree of agent contamination within the rooms housing the secondary chambers of the LICs are low enough to allow for unscheduled entry. The combination of the secondary chamber room temperature and the type of personal protective equipment that can be used place a lower heat load on the operator than that of the rooms housing the primary chambers.

5.3.1.2.6 Physical visual inspections of the components of each incinerator are conducted when personnel are in the rooms performing operational activities, maintenance activities, or both. Physical visual environmental inspections are conducted, at a minimum, on a monthly basis.

5.3.1.2.7 Physical visual inspections of the PAS are conducted on a daily basis.

5.3.1.2.8 Automatic Waste Feed Cut-Offs (AWFCO) shall be tested every 14 days. The method of testing is described in the Attachment 6 (Calibration Plan). Waste feed cut-off test documentation shall be included in the Operating Record.

5.4 INCINERATOR ANCILLARY EQUIPMENT

5.4.1 Process Control/RCRA Compliance Instrumentation

5.4.1.1 The process control instrumentation associated with specific permit conditions is listed in the Calibration Plan (Attachment 6). The frequency of calibration is based on the type of instrument (e.g. temperature transmitter, pressure transmitter, etc.).

5.4.1.2 A commercially available calibration system is used as a tool in performing calibration and maintaining calibration records. The system consists of numerous hand-held calibrators/data recorders and an associated database.

5.4.1.3 Calibration records of incinerator process control instrumentation that are not Continuous Emission Monitoring System (CEMS) analyzers shall be maintained in the database associated with the calibration system.

5.4.1.4 The technician calibrates each instrument and records sufficient information to demonstrate the following: instrument Tag ID, name of person performing the calibration, date calibration was performed, time calibration was performed, location of calibration event (Manufacturer, Shop, or Field), % error as found in an instrument that can be calibrated, % error as left in an instrument that can be calibrated, and the calibrator values fed to the instrument that were used to determine % error.

5.4.3 ***Incinerator Pollution Abatement Systems***

5.4.3.1 Components of each incinerator's PAS undergo a daily physical visual inspection. PAS sump 110 at TOCDF is inspected daily for the presence of liquids. Accumulated liquids, in excess of three inches depth, are removed within 24 hours of detection and managed in accordance with Attachment 2 (Waste Analysis Plan).

5.5 **STORAGE/TREATMENT UNITS [R315-8-10 [40 CFR 264.195(a); 264.195(b)]]**

5.5.1 Table 5-1 lists the permitted Treatment/Storage Units that are required to undergo a daily environmental inspection. HWMUs ACS-TANK-101, ACS-TANK-102, SDS-TANK-101, SDS-TANK-102, and SDS-TANK-103 are located inside the MDB, NSF-TANK-8514, LCS-TANK-8516, LCS-TANK-8511, LCS-TANK-8534 and SDS-TANK-8523 are located in the ATLIC TOX Area, these units ~~and~~ are under the same engineering controls previously described. Because access is limited to the area where these tanks are located by the high potential of chemical agent contamination, the daily environmental inspection is performed by the control room operators using remote controlled closed circuit television cameras and process data displayed on the control room monitors. The associated secondary containment systems are inspected for the presence of liquids by observing the status of the secondary containment systems sump liquid level indicators. The presence of a level alarm indicates liquid in the sump. A physical visual inspection shall be performed on the permitted treatment/storage units located in the MDB and the ATLIC TOX Area at a minimum on a weekly basis.

5.5.2 During the physical inspection, the secondary containment systems associated with the tanks located in the Toxic Cubicle are inspected for cracks, gaps, and the deterioration of concrete sealer. Ultrasonic thickness testing of the SDS tanks is also performed during the physical inspection on an annual basis.

5.5.3 Storage/Treatment units and their associated secondary containment systems located outside the MDB and inside the ATLIC TOX Area undergo a daily physical visual inspection.

5.5.4 The Autoclave in Area 10 Igloo 1631 in conjunction with its shared filtration system, is a "miscellaneous treatment unit" in accordance with R315-8-16 [40 CFR 264 Subpart X] and is required to undergo environmental inspections by 40 CFR 264.602.

5.5.5 The Drum Ventilation System (DVS) Enclosures and Sorting Room (DVSSR) in Area 10 Igloo 1632 in conjunction with their shared filtration system are "miscellaneous treatment units" in accordance with R315-8-16 [40 CFR 264 Subpart X] and are required to undergo environmental inspections by 40 CFR 264.602.

5.5.6 The ATLIC Ton Container Glove-box in Area 10 is considered a "miscellaneous treatment unit" in accordance with R315-8-16 [40 CFR 264 Subpart X] and are required to undergo environmental inspections by 40 CFR 264.602.

5.6 **LOAD/UNLOAD AREAS [R315-8-2.6(b)(4)]**

5.6.1 Areas located outside engineering controls that are used to load and unload hazardous waste are: the CHB where overpacked bulk containers and munitions are received;

5.8.4 Once per week, each ICU is inspected by personnel physically located at the ICU (i.e., a physical visual inspection). This inspection consists of observing the level of liquid in the ICU and communicating the observation to the control room to determine if the actual level of liquid in the ICU corresponds with the correct alarm displayed on the advisor screen.

5.8.5 Other sumps (e.g., those sumps not classified as ICUs, etc.) consist of the following: MDB and ATLIC RCRA Permitted Sumps (Category A/B and B); MDB and ATLIC RCRA Permitted Sumps (Category C); Disconnected Sumps; and Secondary Containment Sumps (ACS, SDS, BRA Tanks, and Brine Loading Station sumps).

5.8.6 The MDB and ATLIC Permitted Sumps (Category A/B and B) are connected to the SDS hazardous waste management unit and shall be inspected using ICU procedures. The daily inspection of these sumps is conducted by an operator monitoring the liquid level in each sump from the advisor screen located in the control room. Sumps containing liquid shall be pumped down within 24 hours from the time the liquid first began to accumulate (as indicated by the activation of the sump's level indicator). A PDARS report generated daily is used to demonstrate the sumps were inspected and are managed properly. The transfer of each sump's contents is complete when the sump's low level indicator alarm is deactivated.

5.8.7 Once per week, each MDB Permitted Sump (Category A/B and B), with the exception of sumps SDS-PUMP-157 and -188, shall be inspected by personnel physically located at the sump (i.e., a physical visual inspection). Since sumps SDS-PUMP-157 and -188 are located in high temperature areas near the LICs and a cool down is required before a physical visual inspection can occur, the physical visual inspections for these sumps shall be done monthly. These inspections consist of the inspector observing the level of liquid in the sump and communicating the observation to the control room to verify the actual level of liquid in the sump corresponds with the correct alarm displayed on the advisor screen.

5.8.8 The MDB and ATLIC Permitted Sumps (Category C), which are connected to the SDS hazardous waste management unit, shall be inspected daily by physical visual inspections and shall be pumped down within 24 hours of detection. The transfer of each sump's contents is complete when the sump's low-level indicator alarm is deactivated.

5.8.9 The Disconnected Sumps mentioned above are not connected to the SDS hazardous waste management unit. Any hazardous waste collected in these sumps shall be managed according to the standards applicable to generators of hazardous waste (R315-5). The inspection requirements for the secondary containment sumps mentioned above are described in Tables 5-21 through 5-24.

5.8.10 During agent change over (i.e., the time period over which activities are conducted to prepare the TOCDF to treat a different type of chemical agent), each ICU, ATLIC and MDB Permitted Sump (Categories A/B, B, and C) shall be:

5.8.10.1 Triple rinsed with appropriate decontamination solution to decontaminate the sump and provide a basis for regulatory partial closure. At the time the sumps are triple rinsed, the function of each sump level switch will be checked. Each sump will be filled incrementally so

that each of the level switches will be activated in sequence. The control room will verify the activation of each switch.

5.8.10.2 Completely emptied so the metal sump can be inspected for corrosion and integrity of the surface coating.

5.8.11 For ICUs, the following activities shall be performed annually and be documented:

5.8.11.1 Interstitial leak detection sensor will be removed and tested for proper function. The control room will verify activation of the leak detection sensor.

5.8.11.2 Interstitial space between the metal sump and the concrete liner will be checked for the presence of liquid.

5.9 **~~MDB~~ HVAC CARBON FILTERS**

5.9.1 The MDB and ATLIC HVAC carbon filters shall be inspected daily to ensure proper operation and sufficient absorption media capacity.

5.9.2 The TOCDF has ~~N~~nine exhaust filter units that are available, with any seven running at the same time. The ATLIC has 3 filter units that are available, with any 2 running at the same time. Each of the nine TOCDF filter units contains a pre-filter, a High Efficiency Particulate Air (HEPA) filter, six individual banks of carbon filters, followed by a HEPA filter. The ATLIC filters are configured similar to those at TOCDF except each ATLCI filter system contains three banks of carbon. Differential pressure sensors (used to determine plugging) are located across the pre-filter, the initial HEPA filter, the final HEPA filter, and one to measure the overall differential pressure across each filter unit. Agent monitoring (ACAMS and DAAMS tubes, used to determine saturation of the carbon bank) occurs in accordance with Attachment 22 (Agent Monitoring Plan). A flow sensor is placed in each filter's exhaust blower inlet to enable the control room operator to determine if any loss of performance has occurred in the filter unit's blower.

5.9.3 The inspection of the MDB and the ATLIC carbon filter system shall be done daily and shall be performed by a control room operator observing the status of agent alarms, the differential pressure across the filter unit, and the exhaust blower flow rate of each operating exhaust filter unit.

5.10 **EMERGENCY AND SAFETY EQUIPMENT [R315-8-2.6(b); R315-8-2.6(c)]**

5.10.1 The design of the TOCDF and ATLIC includes emergency equipment to be used in the event of a fire or hazardous waste release. Additional inventories of supplies are set aside to be used in an emergency situation. Emergency equipment is inspected to ensure that it is available and functional in the event it has to be used. Included in this category are the emergency power generators, the security system, the site evacuation siren, the fire protection systems, and the Hazmat Van and Decon Trailer including the inventory of spill response equipment maintained on the vehicles.

5.10.2 **Emergency Power System/Uninterruptible Power Supply**

5.10.2.1 Each emergency generator shall be tested monthly to ensure the emergency generators function properly, and equipment and systems designated as essential loads continue to function if utility power is interrupted.

5.10.2.2 The emergency generators shall be tested by operating one emergency generator in either a loaded or unloaded configuration. This test format results in the performance of each emergency generator being evaluated on a monthly basis. The filter generator shall also be tested monthly by operating the generator in either a loaded or unloaded configuration.

5.10.2.3 The Uninterruptible Power Supply (UPS) shall be inspected monthly by checking the battery voltage. Annually, the Emergency Power System (e.g., both emergency generators, switchgear, etc.) and UPS shall be tested by performing power loss tests. The annual power loss tests may be scheduled events or may be unscheduled or naturally occurring events (e.g., power loss due to inclement weather, etc.).

5.10.3 **Security System**

5.10.3.1 The emphasis of the inspection of the security system is placed on the fence surrounding the TOCDF site, which is used to keep unauthorized personnel out. Warning signs are posted at approximately 100-foot intervals around the facility perimeter. The inspection is performed to ensure the integrity of the fencing system and determine if any warning signs are missing. Security lighting shall be inspected to ensure that all lights are working.

5.10.4 **Emergency Communication System**

5.10.4.1 The emphasis of the inspection of the TOCDF site communication system is placed upon the site evacuation siren. The siren shall be tested weekly to ensure proper operation.

5.10.4.1 Although other methods of communication are available on the site (i.e., phones, radios, public address system) there is no plan to inspect communication equipment because it is used daily as part of the methods of managing/operating the TOCDF.

5.10.5 **Fire Protection Systems**

5.10.5.1 Four types of fire suppressants are used in the TOCDF fire protection systems; Halon 1301, FM-200/FE-227, dry-chemical, and water. The ATLIC uses a wet sprinkler system in Igloo 1639 and a FM200 System in the ATLIC Control Center Equipment Enclosure. All system inspections conform to procedures and frequencies specified in the National Fire Protection Association (NFPA) - National Fire Code (NFC) 12A, 13, 17, and 2001.

5.10.5.2 Fire protection systems using Halon as a fire suppressant shall be inspected every six months to ensure a full charge of Halon is present in the Halon storage tanks. Fire protection systems using FM-200/FE-227 as a fire suppressant shall be inspected every six months to ensure a full charge of extinguishing agent is present in the FM-200/FE-227 storage tanks.

5.10.5.3 Fire protection systems using a dry chemical fire suppressant shall be inspected every six months to ensure that there is a sufficient compressed gas (nitrogen) to propel the dry chemical through the system.

TABLE 5-11 ENVIRONMENTAL INSPECTION FOR TOCDF LIC 1 & LIC 2 PRIMARY CHAMBERS		
ITEM **264.15(b)(1)**	**TYPES OF PROBLEMS** **264.15(b)(3)**	**FREQUENCY** **264.15(b)(4)**
Primary Chamber Waste Handling/Piping	Inspect for leaks in the agent feed line at threaded and flanged pipe connections.	Daily
Primary Chamber	Inspect for fugitive emissions and hot spots on the outer shell of the primary chamber, which would indicate a breakdown of the chamber's refractory.	Daily
Primary Chamber Combustion Air Blower	Evaluate combustion air blower performance through Control Room advisor screen observations.	Daily
LIC Primary Chamber Room Floor	Inspect for residues of lubricant and/or wastes beneath the components of the LIC agent feed system and the LIC exhaust gas ductwork.	Daily
Waste Feed Cut-Off Mechanism	Test control circuit and document that waste feed is stopped.	Every 14 days
Notes: Visual inspections are performed remotely through the use of Closed Circuit Television by the incinerator operator in the Control Room. Physical visual inspections are performed at a minimum on a monthly basis.		

TABLE 5-12 ENVIRONMENTAL INSPECTION FOR TOCDF LIC 1 & LIC 2 SECONDARY CHAMBERS		
ITEM **264.15(b)(1)**	**TYPES OF PROBLEMS** **264.15(b)(3)**	**FREQUENCY** **264.15(b)(4)**
Secondary Chamber Waste Handling/Piping	Inspect for releases of wastes from the spent decon solution feed line at welded and flanged pipe connections.	Daily
Secondary Chamber	Inspect for fugitive emissions, and hot spots on the outer shell of the secondary chamber, which would indicate a breakdown of the chamber's refractory. Inspect interior of secondary chamber through the view port to ensure the slag level has not reached the top of the view port.	Daily
Secondary Chamber Combustion Air Blower	Inspect for loss of lubrication and vibration. Check for broken or missing anchor bolts.	Daily
Secondary Chamber Room Floor	Inspect for residues of lubricant and/or wastes beneath the components of the spent decon feed system and the LIC secondary chamber ductwork having a potential to cause a release of wastes or fugitive emissions.	Daily
Notes: Physical visual inspections are performed daily by Operator(s)		

TABLE 5-15
ENVIRONMENTAL INSPECTION
FOR
TOCDF LIC 1, LIC 2, MPF, & DFS
POLLUTION ABATEMENT SYSTEMS

ITEM 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
DFS Afterburner Combustion Blower	Inspect blower for excessive noise, vibration, loss of lubricant, and missing or broken anchor bolts.	Daily
DFS Afterburner	Inspect afterburner shell for hot spot, which would indicate a breakdown of refractory.	Daily
Mechanical Locks for DFS Isolation and Air Intake Valves	During normal operations, XV-862 will be locked in the open position and HV-863 will be locked in the closed position. Inspect XV-862 and HV-863 to ensure mechanical locks are in place and secure.	Daily
Exhaust Gas (PAS) Ductwork	Inspect for fugitive emissions or residues at flanged duct connections and duct expansion joints. Inspect expansion joints for breaks that would result in leakage to the system.	Daily
Quench Tower	Inspect for brine residues at manway covers and released liquids from piping or pumps.	Daily
Venturi Scrubber	Check venturi plug valve and ensure that it operates freely. Inspect for releases of scrubber liquid from associated pumps and piping.	Daily
Packed Bed Scrubber	Inspect for scrubber liquid residues at manway cover. Inspect for release of scrubber liquid from associated pumps and piping.	Daily
Demister	Inspect for fugitive emissions or residues of scrubber liquid at the manway cover.	Daily
TOCDF PAS-SUMP-110	Inspect for the presence of material and liquids in excess of three inches (3"). Check for oil sheen.	Daily
Bleed Air Damper	Ensure cover on bleed air damper is in place and secure.	Daily
PAS Blower	Inspect for excessive vibrations and loss of lubricant.	Daily
Scrubber Effluent Handling System	Inspect brine transfer line and associated pumps for leaks at pump seals and flanged pipefittings. Inspect for swaying pipe system during operation.	Daily

Notes: Physical visual inspection performed daily by Pollution Abatement System Operator(s).

TABLE 5-16
ENVIRONMENTAL INSPECTION
FOR LOAD/UNLOAD AREAS &
INCINERATOR RESIDUE DISCHARGE AREAS

ITEM 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
CHB Load/Unload Area	Visually inspect for discolored and stained soil/concrete and hazardous waste residues.	Daily
RHA Load/Unload Area (outside building)	same as above	Daily
MPF Metal Residue Discharge Area	Inspect for ash residues on concrete base underneath conveyor system.	Daily
DFS Cyclone Ash Discharge Area	Inspect for ash residue around receiving container. Ensure that the container is labeled as hazardous waste and that there is sufficient space in the container to receive ash that will be generated during operational period.	Daily
DFS Heated Discharge Conveyor Residue Discharge Area	Same as above	Daily
Notes: Physical visual inspections are performed daily (when in use).		

TABLE 5-17
INSPECTION
FOR
TOCDF AGENT MONITORS

ITEMS 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
TOCDF Common Stack (PAS 701 and PAS 706)	Perform agent challenge test IAW Attachment 22 to determine the need to calibrate monitor. calibrate if agent test results in failure. Replace monitor if it can't be calibrated to specification.	Agent Challenge (Every 4 hrs.)
LIC 2 PAS Blower (PAS702)	Same as above	Agent Challenge (Every 4 hrs.)
LIC 1 PAS Blower (PAS703)	Same as above	Agent Challenge (Every 4 hrs.)
MPF PAS Blower (PAS704)	Same as above	Agent Challenge (Every 4 hrs. for VX and Daily for GB)
DFS PAS Blower (PAS705)	Same as above	Agent Challenge (Every 4 hrs. for VX and Daily for GB)
MDB Filter Stack (FIL601)	Perform agent challenge test IAW Attachment 22 to determine the need to calibrate monitor. calibrate if agent test results in failure. Replace monitor if it can't be calibrated to specification.	Agent Challenge (Daily)
Notes: The (TAG ID's) used are those that appear on the Control Room advisor screens and the Process Data Acquisition and Reporting System (PDARS) generated reports.		

TABLE 5-26
ENVIRONMENTAL INSPECTION
FOR THE
TOCDF MUNITIONS DEMILITARIZATION BUILDING
VENTILATION CARBON FILTER SYSTEM

ITEM 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
Agent Monitors	Observe the values reported from the ACAMS monitoring the MDB ventilation carbon filter banks (to determine if breakthrough of any carbon bank has occurred).	Daily
Differential Pressures	Observe the values reported from the differential pressure transmitters (to determine if plugging of any carbon filter bank has occurred).	Daily
Filter System Blowers	Observe the flow rates reported by the filter system blowers (to determine if blower performance has deteriorated).	Daily

Notes: Visual inspections are performed remotely by Control Room Operator(s) through use of the data acquisition system.

TABLE 5-27
SAFETY AND EMERGENCY EQUIPMENT INSPECTION
FOR
EMERGENCY RESPONSE EQUIPMENT
(For all EG&G Operated Facilities)

ITEM(quantity) 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
HAZMAT Truck with Decon Trailer	Parked in proper location, gas tank is more than half full, engine starts.	Monthly
Ton Container Repair Kit (1)	Inspect kit seal to ensure that the contents of the kit are complete. If the seal is broken inspect contents of kit.	Monthly
85 Gallon Overpacks (3)	Inspect for sufficient quantity.	Monthly
*OSHA Level A Response Suits (12)	Inspect for sufficient quantity and functionality	Monthly
OSHA Saranex Suits (6)	Inspect for sufficient quantity and functionality	Monthly
OSHA Level C Response Suits (6)	Inspect for sufficient quantity and functionality	Monthly
SCBA Packs with Bottles (6)	Inspect for sufficient quantity and functionality	Monthly
Spare Air Pack Bottles (6)	Inspect for sufficient quantity and functionality	Monthly
Respirators with particulate/organic vapor cartridges (6)	Inspect for sufficient quantity and functionality	Monthly
Non-Sparking Tool Kit (1)	Inspect for completeness of kit	Monthly
Portable Eyewash Station (1)	Inspect for functionality	Monthly
Caustic Neutralizer (10 gallons)	Inspect for sufficient quantity	Monthly
Acid Neutralizer (10 gallons)	Inspect for sufficient quantity	Monthly
Shovels (5)	Inspect for sufficient quantity	Monthly
Brooms (5)	Inspect for sufficient quantity	Monthly

TABLE 5-27
SAFETY AND EMERGENCY EQUIPMENT INSPECTION
FOR
EMERGENCY RESPONSE EQUIPMENT
(For all EG&G Operated Facilities)

ITEM(quantity) 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
Absorbent (100 lbs.)	Inspect for sufficient quantity	Monthly
Foot Baths (4)	Inspect for sufficient quantity	Monthly
**TAP Butyl M3 Coveralls or OSHA A Response Suits (6)	Inspect for sufficient quantity and functionality	Monthly
TAP Butyl Hood (6)	Inspect for sufficient quantity and functionality	Monthly
TAP Butyl M2 Gloves (6 pair)	Inspect for sufficient quantity and functionality	Monthly
OSHA Overboots (6 Pair)	Inspect for sufficient quantity and functionality	Monthly
TAP Butyl M2A1 Boots (6 Pair)	Inspect for sufficient quantity and functionality	Monthly
TAP Butyl M2 Aprons or OSHA Level C Coveralls (6)	Inspect for sufficient quantity and functionality	Monthly
Agent Antidote Kits (6)	Inspect for sufficient quantity	Monthly
Water for Decon (25 gallons)	Inspect for sufficient quantity	Monthly

Notes:

* There are at least 12 OSHA Level A Response Suits that are stored in the PMB TAP Room.

** There are at least 6 TAP Butyl M# Coveralls or OSHA Level A Response Suits stored on the HAZMAT Truck.

TABLE 5-28
SAFETY AND EMERGENCY EQUIPMENT INSPECTION
FOR THE TOCDF
EMERGENCY GENERATORS, SECURITY, HAZARD COMMUNICATION, & FIRE PROTECTION SYSTEMS

ITEM 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
Emergency Generators	Test each Emergency Generator by operating in either a loaded or unloaded configuration.	Monthly
Filter Generator	Test the Filter Generator by operating in either a loaded or unloaded configuration.	Monthly
Uninterruptible Power Supply	Check for Adequate Voltage.	Monthly
Emergency Power System/Uninterruptible Power Supply	Test Emergency Generators and Uninterruptible Power Supply by performing a power outage exercise. Ensure sufficient power is provided to equipment and systems designated as critical and essential loads.	Annually
Security		
Fencing	Visually inspect the fences and gates surrounding TOCDF for integrity, sight obstructions caused by vegetation, and gaps at the fence base.	Weekly
Warning Signs	Visually inspect for the presence of all signs. Sign must be legible from a distance of 50 feet.	Weekly
Outside Security Lighting	Visually inspect the lights for proper operation.	Weekly
Site Evacuation Siren	Verify operability of evacuation siren.	Weekly
Fire Protection Systems		
Halon	Verify sufficient pressure in halon storage tanks.	Six months
Control Room		
UPS/Battery Enclosures and FM-200/FE-227	Verify sufficient pressure in FM-200/FE-227 storage tanks.	Six months
Dry Chemical	Verify sufficient pressure in nitrogen propellant tanks.	Six months
Common PAS		
Toxic Chemical		
Automatic Sprinkler	Verify sufficient flow rate of water at inspector's test connection.	Annually
CHB		
UPA		
Fire Hydrants	Verify sufficient flow	Annually

TABLE 5-31 ENVIRONMENTAL INSPECTION FOR THE ATLIC TON CONTAINER GLOVE-BOXES		
ITEM **264.15(b)(1)**	**TYPES OF PROBLEMS** **264.15(b)(3)**	**FREQUENCY** **264.15(b)(4)**
Glove-box Gloves	Inspect gloves and their penetration seals/gaskets for cracks, holes or tears. Ensure labeled service life of the glove has not expired	Daily
Glove-box Pressure	Observe Glove-box pressure reading to ensure negative pressure is maintained within the glove-box whenever a ton container is present	Daily
Glove-box Interior	Observe interior of glove-box through the observation windows to determine if connections to ton container, valves and piping are not leaking. Observe for presence of liquids	Daily
Physical visual inspection performed by local operator.		

TABLE 5-32
ENVIRONMENTAL INSPECTION
FOR
ATLIC LIC PRIMARY AND SECONDARY CHAMBERS

ITEM 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
Primary Chamber Waste Handling/Piping	Inspect for leaks in the agent feed line at threaded and flanged pipe connections.	Daily
Secondary Chamber Waste Handling/Piping	Inspect for releases of wastes from the spent decon solution feed line at welded and flanged pipe connections.	Daily
Primary Chamber	Inspect for fugitive emissions and hot spots on the outer shell of the primary chamber, which would indicate a breakdown of the chamber's refractory.	Daily
Secondary Chamber	Inspect for fugitive emissions, and hot spots on the outer shell of the secondary chamber, which would indicate a breakdown of the chamber's refractory.	Daily
Combustion Air Blower	Evaluate combustion air blower performance through Control Room advisor screen observations.	Daily
ATLIC Room Floor	Inspect for residues of lubricant and/or wastes beneath the components of the LIC agent feed system and the LIC exhaust gas ductwork.	Daily
Waste Feed Cut-Off Mechanism	Test control circuit and document that waste feed is stopped.	Every 30 days

Notes: Visual inspections are performed remotely through the use of Closed Circuit Television by the incinerator operator in the Control Room.
Physical visual inspections are performed at a minimum on a monthly basis.

TABLE 5-33
ENVIRONMENTAL INSPECTION
FOR
ATLIC LIC
POLLUTION ABATEMENT SYSTEMS

ITEM 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
Exhaust Gas (PAS) Ductwork	Inspect for fugitive emissions or residues at flanged duct connections and duct expansion joints. Inspect expansion joints for breaks that would result in leakage to the system.	Daily
Quench Tower	Inspect for brine residues at manway covers and released liquids from piping or pumps.	Daily
Packed Bed Scrubber	Inspect for scrubber liquid residues at manway cover. Inspect for release of scrubber liquid from associated pumps and piping.	Daily
Venturi Scrubber	Check venturi plug valve and ensure that it operates freely. Inspect for releases of scrubber liquid from associated pumps and piping.	Daily
Moisture Separator	Inspect for fugitive emissions or residues of scrubber liquid at the inlet and outlet flanges connections.	Daily
Baghouse	Inspect inside Baghouse residue enclosure for integrity of the waste residue container's connection to the Baghouse hopper at discharge gate and for waste residues.	Daily
PAS Blower	Inspect for excessive vibrations and loss of lubricant.	Daily
Scrubber Effluent Handling System	Inspect brine transfer line and associated pumps for leaks at pump seals and flanged pipefittings. Inspect for swaying pipe system during operation.	Daily

Notes: Physical visual inspection performed daily by Pollution Abatement System Operator(s).

TABLE 5-34
INSPECTION
FOR
ATLIC AGENT MONITORS

ITEMS 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
ATLIC Exhaust Stack TEN-709 and TEN-710	Perform agent challenge test IAW Attachment 22A to determine the need to calibrate monitor, calibrate if agent test results in failure. Replace monitor if it can't be calibrated to specification.	Agent Challenge (Every 4 hrs.)
ATLIC Filter Stack (TEN-750)	Perform agent challenge test IAW Attachment 22A to determine the need to calibrate monitor, calibrate if agent test results in failure. Replace monitor if it can't be calibrated to specification.	Agent Challenge (Daily)

Notes: The (TAG ID's) used are those that appear on the Control Room advisor screens and the Process Data Acquisition and Reporting System generated reports.

TABLE 5-35
ENVIRONMENTAL INSPECTION
FOR THE
ATLIC VENTILATION CARBON FILTER SYSTEM

ITEM 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
Agent Monitors	Observe the values reported from the ACAMS monitoring the ATLIC ventilation carbon filter banks (to determine if breakthrough of any carbon bank has occurred) and vestibules to determine if corrective action is required.	Daily
Differential Pressures	Observe the values reported from the differential pressure transmitters (to determine if plugging of any carbon filter bank has occurred).	Daily
Filter System Blowers	Observe the flow rates reported by the filter system blowers (to determine if blower performance has deteriorated).	Daily

Notes: Visual inspections are performed remotely by Control Center Equipment Enclosure Operator(s) through use of the data acquisition system.

TABLE 5-36
SAFETY AND EMERGENCY EQUIPMENT INSPECTION
FOR THE ATLIC
EMERGENCY GENERATORS, SECURITY, HAZARD COMMUNICATION, & FIRE PROTECTION SYSTEMS

ITEM 264.15(b)(1)	TYPES OF PROBLEMS 264.15(b)(3)	FREQUENCY 264.15(b)(4)
Emergency Generators	Test each Emergency Generator by operating in either a loaded or unloaded configuration.	Monthly
Uninterruptible Power Supply	Check for Adequate Voltage.	Monthly
Emergency Power System/Uninterruptible Power Supply	Test Emergency Generators and Uninterruptible Power Supply by performing a power outage exercise. Ensure sufficient power is provided to equipment and systems designated as critical and essential loads.	Annually
Fire Protection Systems		
ATLIC Control Room Fire Suppression System	Verify sufficient pressure in storage tanks.	Six months
Automatic Sprinkler System	Verify sufficient flow rate of water at inspector's test connection.	Annually

TABLE 5-37
ENVIRONMENTAL INSPECTION
FOR THE ATLIC TOX AREA TANKS

ITEM 264.15(b)(1)	TYPES OF PROBLEMS 264.15 (b)(3)	FREQUENCY 264.15 (b)(4)
Level Indicators and Transmitters	Check level indicator transmitters for proper operation at control panel.	Daily
Tank Structure	Visually inspect for major corroded areas, discolored, or blistered surface coating, buckles or bulges in tank, corrosion around foundation, and evidence of overtopping.	Daily
Fixed Roof and Closure Devices	Visually inspect 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.	Annually
Tank Area	Visually inspect for evidence of waste residue on floor.	Daily
Tank Supports	Visually inspect for discolored or blistered surface coating and corroded areas.	Daily
Pipe System, Valves, and Pumps	Visually inspect for leaks, vibration or swaying of pipe systems, missing pump anchor bolts.	Daily
Secondary Containment	Visually inspect for the presence of liquid in Toxic Area sump by observing the status of sump's liquid level indicator.	Daily
Secondary Containment System (including Toxic Area Floor)	During physical visual inspection, inspect for cracks and deterioration of protective coating of secondary containment system and Toxic Cubicle floor. Also inspect all items as listed above.	Weekly

Notes: Visual inspections are performed remotely through the use of Closed Circuit Television by an operator in the Control Room.
Physical visual inspections are performed at a minimum on a weekly basis.

**DAILY ENVIRONMENTAL INSPECTION
FOR 24-HOUR INTERMITTENT COLLECTION UNITS AND
ATLIC RCRA PERMITTED SUMPS (LIC ROOM, ENTRY AIRLOCK A, B and TOX AREA ROOM)**

Sump/Location	Daily Results
SDS-PUMP-8526 / Entry Airlock B	
SDS-PUMP-8527 / LIC Room	
SDS-PUMP-8529 / Entry Airlock A	
SDS-PUMP-8530 / TOX Area Room	
1. The sumps are identified by their corresponding pump numbers.	
2. *Visual inspection (i.e., by viewing advisor screen located in control room) for the absence of material in sumps. Sumps identified to contain liquid will be pumped down within 24 hours from the time the liquid first began to accumulate as indicated on the level indicator (Att 5, 5.8.3).* **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.**	

Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

_____

_____

_____

_____

_____

Inspector Print / Sign _____ Date _____ Time _____

ENVIRONMENTAL INSPECTION LOG FOR THE ATLIC LIQUID INCINERATOR PRIMARY AND SECONDARY CHAMBERS

Daily

1. Mark with a ✓ whether the inspection of the Primary Chamber is being performed through the use of a Closed Circuit TV ( ), or In-Person ( ).

2. **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.**

   a. **Primary Chamber / Secondary Combustion Chamber Waste Feed Line**
   Inspect for leaks in the agent feed line at threaded and flanged pipe connections (Att 5, Table 5-32)

   ( ) ATLIC PCC ( ) ATLIC PCC

   b. **Primary/Secondary Combustion Chamber**
   Inspect for fugitive emissions and hot spots on the outer shell of the chamber, which would indicate a breakdown of the chamber's refractory (Att 5, Table 5-32).

   ( ) ATLIC PCC ( ) ATLIC PCC

   c. **ATLIC Combustion Air Blower**
   Evaluate Combustion Air Blower performance through Control Room Advisor Screen Operations (Att 5, Table 5-32)

   ( ) ATLIC

   d. **ATLIC Room Floor**
   *Inspect for residues of lubricant and/or wastes beneath **the components of the ATLIC waste feed system** and the LIC exhaust gas ductwork). Inspect for residues of lubricant and/or wastes beneath the components of the spent decon feed system having a potential to cause a release of wastes or fugitive emissions. (Att 5, Table 5-32).*

   ( ) ATLIC PCC ( ) ATLIC PCC

3. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

Inspector Print / Sign Date Time

ENVIRONMENTAL INSPECTION LOG FOR THE ATLIC POLLUTION ABATEMENT SYSTEM

Daily - Physical

Page 1 of 2

Mark with an S any items found to be satisfactory. Mark with a U the system(s) of which incinerator's PAS are found to be unsatisfactory and describe in comments.

a. **Exhaust Gas Ductwork** - *Inspect fugitive emissions or residues at flanged duct connections and duct expansion joints. Inspect expansion joints for breaks that would result in leakage to the system (Att 5, Table 5-33).*

( ) ATLIC PAS

b. **Quench Tower and Associated Pumps/Piping** - *Inspect for brine residues at manway covers and released liquids from piping or pumps (Att 5, Table 5-33)*

( ) ATLIC PAS

c. **Packed Bed Scrubber and Associated Pumps/Piping** - *Inspect for scrubber liquid residues at manway cover. Inspect for release of scrubber liquid from pumps and piping (Att 5, Table 5-)*

( ) ATLIC PAS

d. **Venturi Sscrubber and Associated Pumps/Piping** - *Check venturi. Inspect for releases of scrubber liquid from associated pumps and piping (Att 5, Table 5-)*

( ) ATLIC PAS

e. **Moisture Separator** - *Check for fugitive emission or waste residues at inlet and outlet flange connections. Inspect for releases of scrubber liquid from associated pumps and piping (Att 5, Table 5-33)*

( ) ATLIC PAS

f. **Baghouse** – *Inspect inside Baghouse residue enclosure for integrity of the waste residue container's connection to the Baghouse hopper discharge gate and for waste residues e (Att 5, Table 5-33)*

( ) ATLIC PAS

g. **Carbon Filter** – *Inspect for fugitive emissions of residues of scrubber liquid at the manway cover (Att 5, Table 5-33).*

( ) ATLIC PAS

h. **PAS Blower** - *Inspect for excessive vibrations and loss of lubricant (Att 5, Table 5-33).*

( ) ATLIC PAS

i. **Scrubber Effluent Handling System** – *Inspect brine transfer line and associated pumps for leaks at pump seals and flanged pipe fittings. Inspect for swaying pipe system during operation (Att 5, Table 5-33)*

( ) ATLIC

Page 2 of 2

Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

SYSTEM	WORK REQUEST #	EQUIPMENT	INTERIM ACTIONS OR REQUEST DESCRIPTION
COMMENTS AND OTHER INFORMATION			

Inspector Print / Sign _____ Date _____ Time _____

ENVIRONMENTAL INSPECTION LOG FOR THE ATLIC TOXIC AREA TANKS

Daily

1. Mark with a ✓ whether inspection is being performed through the use of: Closed Circuit TV ( ), or In-Person ( ).

2. **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.**

a. **Level Indicators and Transmitters** - *Check level indicator transmitters for proper operation at control panel (Att 5, Table 5-37)*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

b. **Tank Structure** - *Visually inspect for major corroded areas, discolored, or blistered surface coating, buckles or bulges in tank, corrosion around foundation, and evidence of overtopping (Att 5, Table 5-37)*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

c. **Tank Area** - *Visually inspect for evidence of waste residue on floor (Att 5, Table 5-37)*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

d. **Tank Supports** - *Visually inspect for discolored or blistered surface coating and corroded areas (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

e. **Pipe System, Valves and Pumps** - *Visually inspect for leaks, vibration or swaying of pipe systems, missing pump anchor bolts (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

e. **Toxic Area Sump** - *Visually inspect for presence of liquid in sump by observing the status of sump's liquid level indicator (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

3. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

_____

_____	_____	_____
Inspector Print / Sign	Date	Time

ENVIRONMENTAL INSPECTION LOG
FOR THE
ATLIC VENTILATION CARBON FILTER SYSTEM
PERFORMED BY THE CON-OP
Daily

2. **Record the value of all pressure differential and flow rate readings, satisfactory and unsatisfactory for all on-line filter units. For any monitoring systems at Midbed in Alarm columns, circle Yes or No as appropriate.**

Filter Unit	ACAMS/MINCAMS in alarm or DAAMS only Station			Overall Filter Unit Pressure Differential[2] (" W.C)	Filter Unit Blower[3] (CFM)
	Vestibule[1]	1st[2]	2nd[2]		
Filter 8441 ( )	Yes/No	Yes/No	Yes/No		
Filter 8363 ( )	Yes/No	Yes/No	Yes/No		
Filter 8364 ( )	Yes/No	Yes/No	Yes/No		

[1] For Vestibules, review DAAMS results from previous day. Verify results are less than 0.5 VSL for GA and 0.4 VSL for L. If so circle no.

[2] The monitoring systems alarm at the levels specified in the Agent Monitoring Plan. For filter banks monitoring information is observed to verify that no agent breakthrough for the 1st and 2nd carbon banks has occurred. Monitoring of Vestibules performed with DAAMS. Monitoring of 2nd carbon bed performed with DAAMS only until breakthrough at 1st carbon bed; then NRT monitoring is performed. Second bed inspection not applicable until NRT monitoring begins (i.e., after breakthrough at 1st bed has occurred). Breakthrough is defined as any confirmed reading equal to or greater than 1 VSL for any agent.

[3] Record value and verify that differential pressure did not exceed 12" w.c. *(to determine if plugging of any carbon filter bank has occurred) (Att 5, Table 5-35). Note value is the alarm setpoint.*

[4] Record value and verify an inlet flow greater than or equal to 4,730 CFM *(to determine if blower performance has deteriorated) (Att 5, Table 5-35). Note value is the alarm setpoint*

2. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. ***Document any abnormal conditions associated with the above inspection criteria.***

_____

_____

Inspector Print / Sign _____ Date _____ Time _____

DAILY ENVIRONMENTAL INSPECTION LOG FOR ATLIC TON CONTAINER GLOVE BOX

Daily - Physical

1. **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.**

   a. **Glove-box Gloves** - *Visually inspect gloves and their penetration seals/gaskets for cracks, holes or tears. Ensure labeled service life of the glove has not expired (Att 5, Table 5-31).*

   ( ) GLBX-8501 ( ) GLBX-8502

   b. **Glove-box Pressure** - *Observe Glove-box pressure reading to ensure negative pressure is maintained within the glove-box whenever a ton container is present. Ensure glove-boxes holding ton containers are operating at a minimum negative pressure of 0.25 in-w.c. (Att 5, Table 5-31).*

   ( ) GLBX-8501 ( ) GLBX-8502

   c. **Glove-box Interior** – *Inspect interior of glove-box through the observation windows to determine if connections to ton container, valves and piping are not leaking. Observe for presence of liquids (Att 5, Table 5-31).*

   ( ) GLBX-8501 ( ) GLBX-8502

2. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

_____

Inspector Print / Sign _____ Date _____ Time _____

**WEEKLY ENVIRONMENTAL INSPECTION LOG
FOR 24-HOUR INTERMITTENT COLLECTION UNITS
AND ATLIC RCRA PERMITTED SUMPS
(CATEGORY A, B, AND A/B AREAS)**

Weekly - Physical

Week Ending: _____

Location	Sump	Result (S or U)	Inspector Print and Sign	Date	Time
TOX Area	SDS-PUMP-8530				
Entry Airlock B	SDS-PUMP-8526				
Entry Airlock A	SDS-PUMP-8529				
LIC Room	SDS-PUMP-8527				

1. Inspection will be performed by removing the grating and with a flashlight, inspect for cracks, chips and deterioration of protective coatings, rusting and any signs of leaks *(Att 5, Table 5-18 and DSHW letter dated 07 May 2004)*. **If the inspection cannot be performed due to residues in the sump, the residues must be removed to complete the inspection.**
2. Physical visual inspection to determine if the liquid level in the sump corresponds with the alarm displayed on the advisor screen in the control room *(Att 5, Table 5-18)*. **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions below.**

Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions in accordance with the above inspection criteria.**

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Inspector Print / Sign _____ Date _____ Time _____

ENVIRONMENTAL INSPECTION LOG FOR THE ATLIC TOXIC AREA TANKS

Weekly - Physical

1. **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.**

a. **Level Indicators and Transmitters** - *Check level indicator transmitters for proper operation (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

b. **Tank Structure** - *Visually inspect for major corroded areas, discolored, or blistered surface coating, buckles or bulges in tank, corrosion around foundation, and evidence of overtopping (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

c. **Tank Area** - *Visually inspect for evidence of waste residue on floor (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

d. **Tank Supports** - *Visually inspect for discolored or blistered surface coating and corroded areas (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

e. **Pipe System, Valves and Pumps** - *Visually inspect for leaks, vibration or swaying of pipe systems, missing pump anchor bolts (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

f. **Secondary Containment (SDS-PUMP-852 2 presence of liquid)** - *Visually inspect for the presence of liquid in secondary containment sump (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

g. **Secondary Containment (system integrity)** - *Inspect for cracks, gaps and deterioration of protective coating of secondary containment system and floor (Att 5, Table 5-37).*

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

2. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

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Inspector Print / Sign _____ Date _____ Time _____

MONTHLY ENVIRONMENTAL INSPECTION LOG
FOR 24-HOUR INTERMITTENT COLLECTION UNITS AND
ATLIC RCRA PERMITTED SUMPS (CATEGORY A, B, AND A/B AREAS)

MONTH ENDING:

Location	Sump	Result (S or U)	Inspector Print and Sign	Date	Time
L1C1 Primary	SDS-PUMP-8527				

1. Inspection will be performed by removing the grating and with a flashlight, inspect for cracks, chips and deterioration of protective coatings, rusting and any signs of leaks. If the inspection **cannot be performed due to residues in the sump, the residues must be removed to complete the inspection** (Per DSHW Letter, dated May 7, 2004).
2. Physical visual inspection to determine if the liquid level in the sump corresponds with the alarm displayed on the advisor screen in the control room (Att 5, Table 5-19). **Mark with an S any items found to be satisfactory (i.e., those sumps where the liquid level corresponds to the alarm displayed on the advisor screen). Mark unsatisfactory items with a U and describe unsatisfactory conditions below.**

Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

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Inspector Print / Sign Date Time

ENVIRONMENTAL INSPECTION LOG FOR THE ATLIC LIQUID INCINERATOR PRIMARY CHAMBER

Monthly - Physical

1. Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.

a. **Primary Chamber / Secondary Combustion Chamber Waste Feed Line**
Inspect for leaks in the agent feed line at threaded and flanged pipe connections (Att 5, Table 5-32).

( ) ATLIC PCC ( ) ATLIC PCC

b. **Primary/Secondary Combustion Chamber**
Inspect for fugitive emissions and hot spots on the outer shell of the chamber, which would indicate a breakdown of the chamber's refractory (Att 5, Table 5-32).

( ) ATLIC PCC ( ) ATLIC PCC

c. **ATLIC Combustion Air Blower**
Evaluate Combustion Air Blower performance through Control Room Advisor Screen Operations (Att 5, Table 5-32).

( ) ATLIC

d. **ATLIC Room Floor**
*Inspect for residues of lubricant and/or wastes beneath **the components of the ATLIC waste feed system** and the LIC exhaust gas ductwork). Inspect for residues of lubricant and/or wastes beneath the components of the spent decon feed system having a potential to cause a release of wastes or fugitive emissions. (Att 5, Table 5-32).*

( ) ATLIC PCC ( ) ATLIC PCC

2. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. Document any abnormal conditions associated with the above inspection criteria.

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Inspector Print / Sign _____ Date _____ Time _____

PREPAREDNESS & PREVENTION READINESS INSPECTION LOG FOR THE ATLIC EMERGENCY GENERATORS
Monthly - Physical

1. **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.**

a. **Emergency Generators** - *Test each Emergency Generator by operating in either a loaded or unloaded configuration (Att 5, Table 5-36).*

( ) **GEN-GENR-8001:**
Date
Time
Inspector Print / Sign

( ) **GEN-GENR-8002:**
Date
Time
Inspector Print / Sign

b. **Uninterruptible Power Supply** (See completed PM work orders)
Check for adequate voltage (Att 5, Table 5-36).

( ) **SPS-UPS-8001:**
Date
Time
Inspector Print / Sign

( ) **SPS-UPS-8002:**
Date
Time
Inspector Print / Sign

3. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

Inspector Print / Sign Date Time

PREPAREDNESS & PREVENTION READINESS INSPECTION LOG
FOR THE
ATLIC FIRE PROTECTION SYSTEMS

Semi Annual and Annual Physical

1. **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.**

a. Fire Protection Systems (See subcontractor's inspection reports)

( ) **Fire Suppression System (ATLIC Control Room)** - Semi Annual Inspection *Verify sufficient pressure in nitrogen propellant tanks (Att 5, Table 5-36).*

( ) **Automatic Sprinkler System** (See DCD fire department records) – Annual Inspection *Verify sufficient flow (Att 5, Table 5-36)*

2. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

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Inspector Print / Sign _____ Date _____ Time _____

PREPAREDNESS & PREVENTION READINESS INSPECTION LOG FOR THE ATLIC EMERGENCY GENERATORS

Annual - Physical

1. **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.**

Test Emergency Generators and Uninterruptible Power Supply by performing a power outage exercise. Ensure sufficient power is provided to equipment and systems designated as critical and essential loads. These tests may be scheduled events or may be unscheduled or naturally occurring events (e.g. power loss due to inclement weather, etc) (AII 5, 5.10.2.3).

a. **Emergency Generators**

( ) **GENGENR-8001:**
Date
Time
Inspector Print / Sign

( ) **GEN-GENR-8002:**
Date
Time
Inspector Print / Sign

b. **Uninterruptible Power Supply**

( ) **SPS-UPS-8001:**
Date
Time
Inspector Print / Sign

( ) **SPS-UPS-8002:**
Date
Time
Inspector Print / Sign

3. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

ENVIRONMENTAL INSPECTION LOG FOR THE ATLIC TOXIC AREA TANKS

Annual - Physical

1. **Mark with an S any items found to be satisfactory. Mark unsatisfactory items with a U and describe unsatisfactory conditions in comments.**

Fixed Roof and Closure Devices

Visually inspect 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 (Att 5, Table 5-37).

( )	( )	( )	( )	( )
LCS-8511	NSF-8514	LCS-8516	LCS-8534	SDS-8523

2. Describe corrective actions taken, including any work orders (by number) generated to address conditions found to be unsatisfactory. **Document any abnormal conditions associated with the above inspection criteria.**

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Inspector Print / Sign _____ Date _____ Time _____

LIST of TABLES

6-A-1 Liquid Incinerator #1 Process Data and Waste Feed Interlock Instrumentation Calibration

6-A-2 Liquid Incinerator #2 Process Data and Waste Feed Interlock Instrumentation Calibration

6-B Metal Parts Furnace Process Data and Waste Feed Interlock Instrumentation Calibration

6-C Deactivation Furnace System Process Data and Waste Feed Interlock Instrumentation Calibration

6-D Tank Hazardous Waste Management Unit Process Data and Tank Overtop Protection Instrumentation Calibration.

6-E ATLIC Incinerator Process Data and Waste Feed Interlock Instrumentation Calibration

6-F ATLIC Tank Hazardous Waste Management Unit Process Data and Tank Overtop Protection Instrumentation Calibration.

List of Acronyms

ACAMS	Automatic Continuous Air Monitoring System
ACS	Agent Collection System
AQS	Agent Quantification System
ATLIC	Area 10 Liquid Incinerator
BDS	Bulk Drain Station
BRA	Brine Reduction Area
CEMS	Continuous Emission Monitoring System
DFS	Deactivation Furnace System
GA	Nerve Agent GA, Tabun
HWMU	Hazardous Waste Management Units
L	Lewisite
LIC	Liquid Incinerator System
MDM	Multipurpose Demilitarization Machines
MINICAMS	Miniature Continuous Air Monitoring System
MPF	Metal Part Furnace System
PAS	Pollution Abatement System
PDAR	Process Data Acquisition and Recording
PLC	Programmable Logic Controller
RCRA	Resource Conservation Recovery Act
SDS	Spent Decontamination System
TOCDF	Tooele Chemical Agent Disposal Facility

SYSTEM IDENTIFIER	CORRESPONDING SYSTEM
11-XXX-XXX	Toxic Cubicle (TOX) Includes Agent Collection System associated with ACS-TANK-101 & ACS-TANK-102 and Spent Decontamination System associated with SDS-TANK-101, SDS-TANK-102 & SDS-TANK-103
13-XXX-XXX	Liquid Incinerator Systems (LIC 1, & LIC 2)
14-XXX-XXX	Metal Part Furnace System (MPF)
16-XXX-XXX	Deactivation Furnace System (DFS)
23-XXX-XXX	Brine Reduction Area System including: BRA-TANK-101, BRA-TANK-102, BRA-TANK-201, BRA-TANK-202, BRA-EVAP-101, BRA-EVAP-201, BRA-DDYR-101, BRA-DDYR-102, and BRA-DDYR-201
24-XXX-XXX	Incinerator Pollution Abatement Systems: LIC 1 PAS, LIC 2 PAS, MPF PAS, & DFS PAS
27-XXX-XXX	Brine Reduction Area Pollution Abatement System including BRA PAS Baghouse Modules: BRA-SEPA-101, BRA-SEPA-102, BRA-SEPA-103, and BRA-SEPA-104
49-XXX-XXX	Bulk Drain Station (BDS) Agent Quantification System associated with the Bulk Drain Stations (i.e., load cells): BDS-101, & BDS-102
51-XXX-XXX	Agent Collection System (ACS) Agent Quantification Systems associated with the Rocket Shear Machines: RSM-101, & RSM-102, and the Multipurpose Demil Machines: MDM-101, MDM-102, & MDM-103
815-XXX-XXX	ATLIC Incinerator
819-XXX-XXX	ATLIC Incinerator Pollution Abatement System

6.2.3 The following three or four-letter codes are used to identify different types of instruments:

3-4 LETTER CODES	INSTRUMENT TYPE
XX-AIT-XXX	Analyzer Indicator Transmitters includes Continuous Emission Monitors for oxygen, carbon monoxide, & carbon dioxide, and pH analyzers
XX-DIT-XXX	Density Indicator Transmitters
XX-FIT-XXX	Flow Indicator Transmitters
XX-LIT-XXX	Level Indicator Transmitters
XX-PIT-XXX	Pressure Indicator Transmitters
XX-PDIT-XXX	Pressure Differential Indicator Transmitters
XX-PDT-XXX	Pressure Differential Transmitters
XX-TIT-XXX	Temperature Indicator Transmitters
XX-WIT-XXX	Weight Indicator Transmitters
PAS-XXX	Chemical Agent Monitors
TEN-XXX	ATLIC Chemical Agent Monitors

6.2.4 The three-digit numeric suffix is used to differentiate between individual instruments of the same type.

6.2.5 Even though instruments of the same type share the same three or four-letter "instrument type identifier" code, and some instruments share the same one to three-digit suffix, a unique TAG ID exists for each instrument since the complete TAG ID is composed of 1) the System ID Code. 2) the three or four-letter instrument type identifier and 3) the one to three-digit suffix instrument number.

6.2.6 TAG IDs describing alarm and switch waste feed interlocks are derived from the instrument TAG IDs by replacing the last two letters in the instrument type identifier code with one of the following combinations of letters:

6.4.12.2 The transmitters associated with load cells convert and scale the millivolt output of the load cell to a four to 20 milliamp control signal. A calibrator is used to simulate the millivolt output of the load cell to the transmitter. The resulting output of the transmitter is then evaluated. Load cell transmitters are determined to be properly calibrated if the output of the transmitter resulting from a known input is that which is expected ±0.2% of the instrument's span. Transmitters associated with the load cells are calibrated at least once every 90 days.

6.4.12.3. A scale in the TMA may also be used to quantify the amount of miscellaneous waste and miscellaneous agent contaminated liquids (hydraulic fluid, fuel oil, lubricating oil, etc.) that will be transferred to the ACS tanks. This scale will be calibrated once every 360 days by placing a known weight on the scale and adjusting the scale as necessary to obtain an accuracy of ± 2% of the scales range. A record of this yearly calibration date, with results, shall be kept at the facility until the next calibration has been completed.

6.4.13 Chemical Agent Monitors

6.4.13.1 Automatic Continuous Air Monitoring Systems (ACAMS) and Miniature Continuous Air Monitoring Systems (MINICAMS) are used to detect concentration of agent in exhaust gases.

6.4.13.2 The calibration and challenging of ACAMS/MINICAMS is described in Attachments 3 (Sampling, Analytical, and QA/QC Procedures) and 22 (Agent Monitoring Plan).

6.5 R315-8-15.7(c) INCINERATOR WASTE FEED INTERLOCK FUNCTION TEST

6.5.1 The process control system of each incinerator is designed to stop or prevent waste feed when operating parameters exceed the limits specified in this Permit. This feature of the control system is referred to as the automatic waste feed cut-off (or waste feed interlock) system. Hazardous Waste regulations require owners and operators of an incinerator to periodically test this system.

6.5.2 The TOCDF procedure titled "Waste Feed Interlock Testing" (Document Number TE-SOP-301) specifies the interlock that must be tested, the methods used to test the interlocks, and the frequencies at which the tests are to be conducted. The procedure includes examples of the forms used to document the test results.[3]

6.5.2.1 The ATLIC procedure titled "XXXXXXX" (Document Number XX-SOP-XXX) specifies the same information as listed in paragraph 6.5.2 except that it is specific to the ATLIC incinerator. The ATLIC incinerator waste feed interlocks are tested using the manual method described in paragraphs 6.5.3.1 through 6.5.3.4.

6.5.3 The TOCDF waste feed interlocks are tested using one of two methods: (1) an automated method using PLC software that allows inputs of simulated signals into the logic of the field PLCs; or (2) a manual method that is used as a backup if the automated method is not functional. The Permittee shall document in the Operating Record the reason(s) why

[3] The procedure to test the overtop protection systems associated with tanks as required by R315-8-10 [40 CFR 264.195(a)] are included in this procedure.

the automated method was not used and the action(s) taken to correct any problems with the automated method. Waste shall not be fed to the affected furnace(s) during the waste feed interlock test. The manual backup method for testing the waste feed interlocks is as follows:

6.5.3.1 Waste feed interlocks are either activated when the four to 20 milliamp control signal output from a transmitter exceeds a setpoint residing in the process control software or when the value of a process parameter exceeds the setpoint of a switch and causes the switch to open.

6.5.3.2 For waste feed interlocks activated when the magnitude of operating parameters cause the analog value of the four to 20 milliamp control signal output from a transmitter to exceed a setpoint residing in the process control software, the instrument technician injects an artificial control signal into the process control system that is greater or less than the value equivalent to the setpoint. The artificial control signal is injected at the location where the transmitter's output leads connect to the programmable logic controller.

6.5.3.3 For waste feed interlocks activated by a change in state of a switch (i.e., contacts closed to contacts open), the instrument technician will cause a change in state of the control loop associated with the interlock being tested by opening (or removing) the fuse to the loop.[4]

6.5.3.4 The TOCDF ACAMS associated with the waste feed interlocks are tested either automatically or manually as described in Section 6.5.3. Each ACAMS is tested for a malfunction alarm. ATLIC incinerator ACAMS/MINICAMS are tested manually. The ACAMS/MINICAMS associated with the TOCDF ~~e~~Common ~~s~~Stack and ATLIC incinerator exhaust stack are additionally tested for a "non-staggered" alarm.

6.5.4 The automated testing method produces a report documenting the testing of the waste feed interlocks that is prepared using a feature included with the waste feed interlock function test software. The alarms associated with the interlock function test shall be observed and verified by the Control Room Operator of the affected furnace. The observed time of each interlock alarm shall be included with the report. When using the manual backup testing methods, the control room operator observes the activation of each waste feed interlock on the incinerator-specific "~~RCRA~~ Alarm Summary Screen" and records the time of its activation.

6.5.4.1 The reports of the interlock function tests and alarm verifications for each furnace system and tank system shall be included in the Operating Record.

6.5.4.2 The interlock function test report shall verify that all appropriate interlocks occur (e.g., the TOCDF ~~e~~Common ~~s~~Stack ACAMS alarm causes an interlock to automatically prevent the waste feed to all of the furnaces.)

6.5.5 Proper function of the entire waste feed interlock system is demonstrated by:

[4] The Level Switch High High (LSHH), which when activated, prevents continued liquid feed to tank HWMU are tested the same way as incinerator waste feed interlocks that are activated by switches.

6.5.5.1 The proper operation of instrumentation causing waste feed interlocks is ensured and demonstrated by compliance with the calibration methods and frequencies established in the calibration plan,

6.5.5.2 Successful completion of the waste feed interlock function test demonstrates the absence of hardwire jumpers. software jumpers. or both within the portion of the process control logic (i.e., software) that stops and prevents waste feed.

6.5.5.3 Successful completion of the waste feed interlock function test demonstrates the proper function of the PLC, the PLC code associated with stopping or preventing waste feed. and the values of the setpoints used to stop or prevent waste feed.

6.5.5.4 The design of the control system includes continual control loop self diagnostic checks. The process control system components are designed to fail safe (e.g., a failed thermocouple causes the associated transmitter to ramp to its high range. which in turn activates a waste feed interlock).

6.5.6 The waste feed interlocks required to be tested are those associated with operating parameters which have a corresponding Permit Condition limitation.

6.5.7 The frequency at which the testing of the waste feed interlock system of each TOCDF incinerator occurs is at least once every 14 days unless the incineration system has been shut down. If the incineration system has been shut down. the waste feed interlock system will be tested before waste feed is introduced. The interlock system shall be tested every 14 days when the furnace is idling or processing waste. Waste feed shall not occur to the effected incinerator during the waste feed interlock test.

6.5.7.1 The frequency at which the testing of the waste feed interlock system of the ATLIC incinerator occurs is at least once every 30 days (unless the incinerator is shut down) or at the beginning of each agent campaign, which ever is shorter. This duration is due to; 1) the short duration of the incinerator's hazardous waste operations, 2) the short duration of each agent campaign, 3) the number of interlocks that need to be tested because of the additional operating parameter limits associated with the equipment installed on the ATLIC incinerator PAS, 4) the extended length of time and additional coordination required to perform the interlock test using the manual method, and 5) the need to demonstrate the proper function of the ATLIC incinerator waste feed interlock system at the beginning of each agent campaign.

6.5.8 The frequency of testing of the overtop protection system of each TOCDF tank is at least once every 14 days.

6.5.8.1 The frequency of testing of the overtop protection system of each ATLIC tank is at least once every 30 days and before the start of each agent campaign, which ever is shorter.

6.5.9 The frequency of testing of the BRA waste feed interlock system is at least once every 14 days.

6.5.10 Although minor modifications to the procedures may occur, portions of the procedure that shall not be changed without prior approval by the Executive Secretary are:

6.5.10.1 The methods used to test waste feed interlocks.

6.5.10.2 The interlocks required to be tested.

6.5.10.3 The frequency at which the function test occurs which is specified as once every 14 days or 30 days. as indicated in Section 6.5.7.

6.6 PROCESS DATA INSTRUMENTATION CALIBRATION & WASTE FEED INTERLOCK TABLES

6.6.1 The following tables list (by incinerator, Subpart X, and tank) the TAG IDs of process instrumentation whose proper function is required to demonstrate compliance with Permit conditions and stop or prevent waste feed when operating parameters exceed the limits established through the Conditions of this Permit.

6.6.2 Under the column heading "Process Data Instrument TAG ID," transmitters are referenced rather than control loops because it is the transmitters that physically exist as instruments. It is the transmitters that must be calibrated properly to ensure precise process control and accurate data generation.

6.6.3 Process data generated from the output of these transmitters is electronically recorded by the Process Data Acquisition & Recording System (PDARS). The outputs of the transmitters listed are continuously monitored by the Programmable Logic Controllers (PLC), however process variables residing in the registers of the PLC are recorded by PDARS.

6.6.4 The activation and duration of waste feed interlocks (listed in the following tables by alarm/switch TAG IDs) are recorded by PDARS also.

6.6.5 PDARS reports are formatted to present the hourly maximum and minimum values of each parameter listed.

6.6.6 The tables for all incinerators list two scrubber brine pH analyzer transmitter TAG IDs (A and B). The value appearing on the PDARS report associated with each incinerator is the "process variable" (a value that exists in a register of the controller which is the actual pH of the scrubber brine that is compared by the PLC to the setpoint). Each scrubber brine pH analyzer is a complete separate system. Only one of the pH analyzer systems is active at any one time and the system that is active is rotated on equal time intervals. It is the active system that provides the process variable to the controller and it is the process variable that appears on the PDARS reports.

6.6.7 Each exhaust gas carbon monoxide (CO) 60-minute rolling average is composed of the previous 60 one-minute averages. Each one-minute average is composed of four instantaneous CO readings taken 15 seconds apart.

6.6.8 Tables 6-B and 6-C include control loop temperature TAG IDs appearing in bold print; signifying two thermocouple/transmitter pairs are used to measure the temperature. Controllers receiving inputs from two thermocouples/transmitter pairs activate combustion chamber high and low temperature AWFCOs based on the most conservative

TABLE 6-E
ATLIC INCINERATOR
PROCESS DATA & WASTE FEED INTERLOCK INSTRUMENTATION CALIBRATION

Item No.	Parameter	Instrument Tag ID	Measuring Device	Instrument Range	Accuracy	Calibration/Preventative Maintenance Frequency	Calibration/Preventative Maintenance Method
1	Agent Feed Rate to Primary Chamber	807-FT-8430	Mass Flowmeter Vibrating U-Tube Type	0 - 1500 lbs/hr	(± 0.4%) of Flow	180 days	6.4.3.2
2	Agent Atomizing Air Press.	822-PT-8410	Diaphragm	0 - 200 psig	± 1.0% of Span	180 days	6.4.10
3	Primary Chamber Exhaust Gas Temperature	815-TT-8471	Thermocouple	212 - 3,000° F	± 1.0% of Span	180 days	6.4.7
4	Secondary Chamber Spent Decon/Process Water Feed Rate	815-FT-8521	Rheotherm Flow Meter	100 - 1000 lbs/hr	± 0.4% of Flow	180 days	6.4.3.2
5	Spent Decon Atomizing Air Press	822-PT-8511	Diaphragm	12 - 100 psig	± 1.0% of Span	180 days	6.4.10
6	Secondary Chamber Exhaust Gas Temperature	815-TIT-8571	Thermocouple	32 - 2400° F	± 1.0% of Span	180 days	6.4.7
7	Stack Exhaust Gas Flow Rate	819-FIT-8932	D/P Cell	0-14,760 acfm	± 1.0% of Span	180 days	6.4.4
7a	Stack Exhaust Gas Pressure	819-PIT-8932	Diaphram	8-13 psia	± 1.0% of Span	180 days	6.4.10
7b	Stack Exhaust Gas Temperature	819-TIT-8932	Thermocouple	100-2000 °F	± 1.0% of Span	180 days	6.4.7
8	Scrubber Brine Pressure	819-PT-8982	Diaphragm	0 - 100 psig	± 1.0% of Span	180 days	6.4.10
9	Venturi Brine Pressure	819-PI-8956	Diaphragm	0 - 100 psig	± 1.0% of Span	180 days	6.4.10
10	Scrubber Tower Flow	819-FT-8924	Electro-Magnetic Flowmeter	0 - 150 gpm	± 1.0% of Span	180 days	6.4.3.3
11	Venturi Scrubber Δ Pressure	819-PDT-8915	D/P Cell	0-70 in. W.C	± 1.0% of Span	360 days	6.4.4
12	Scrubber Tower Flow	819-FT-8921 819-FT-8922 819-FT-8923	Electro-Magnetic Flowmeter	0 - 150 gpm	± 1.0% of Span	180 days	6.4.3.3
13	Scrubber Δ Pressure	819-PDT-8911 819-PDT-8912 819-PDT-8913	D/P Cell	0-70 in. W.C.	± 1.0% of Span	360 days	6.4.4
14	Venturi Specific Gravity	819-AT-8927	Magnetically Vibrated Tube	0.6 - 1.40 SGU	± 2.0% of span	180 days	6.4.2
15	Venturi Liquid Effluent pH	819-AIT-8917 A, B & C	Electrodes	0 - 14 pH Units	± 2.0% of Span	7 days	6.4.1.2
16	Scrubber Brine Specific Gravity	819-AT-8983	Magnetically Vibrated Tube	0.6 - 1.40 SGU	± 2.0% of span	180 days	6.4.2
17	Scrubber Liquid Effluent pH	819-AIT-8952 A, B & C	Electrodes	0 - 14 pH Units	± 2.0% of Span	7 days	6.4.1.2
18	Carbon Injection Feed	FI-8933	TBD	TBD	TBD	TBD	TBD
19	Carbon Injection Air Flow	FI-8940	TBD	TBD	TBD	TBD	TBD
20	Bag House Δ Pressure	819-PDT-8936	D/P Cell	0-70 in. W.C.	± 1.0% of Span	360 days	6.4.4
21	Carbon Filter Δ Pressure	819-PDIT-8941/8942	D/P Cell	0-70 in. W.C	± 1.0% of Span	360 days	6.4.4
22	Carbon Filter Inlet Temperature	819-TIT-8939	Thermocouple	0- 300° F	± 1.0% of Span	180 days	6.4.7
23	Stack Exhaust Gas CO	819-AIT-8302	Infrared Cell Analyzer	0 - 200 & 0 - 5,000 ppm	± 3.0% of Span	CD: daily CE: quarterly PST: annually	6.4.1.1
24	Stack Exhaust Gas O_2	819-AIT-8301	Zirconium Oxide Cell Analyzer	0 - 25%	± 0.5% of O_2	CD: daily CE: quarterly PST: annually	6.4.1.1

TABLE 6-E
ATLIC INCINERATOR
PROCESS DATA & WASTE FEED INTERLOCK INSTRUMENTATION CALIBRATION

Item No.	Parameter	Instrument Tag ID	Measuring Device	Instrument Range	Accuracy	Calibration/Preventative Maintenance Frequency	Calibration/Preventative Maintenance Method
25	Stack Exhaust Gas Agent (GA)	TEN 708AK TEN 708BK TEN 708CK	ACAMS	0 - 512 SEL	±25% of Response	Challenge every 4 hours, calibrate *if it fails the* challenge	6.4.13

26	Stack Exhaust Gas Agent (Lewisite)	TEN 709AL TEN 709BL TEN 709CL TEN 709DL TEN 709EL TEN 709FL	MINICAMS	0 - 512 SFI	±25% of Response	Challenge every 4 hours, calibrate if it fails the challenge	6.4.13
27	HVAC Stack Exhaust Gas Agent[1](GA)	TEN 750AK TEN 750BK	ACAMS	0 - 512 VSL	±25% of Response	Challenge every 24 hours[2], calibrate if it fails the challenge	6.4.13
28	HVAC Stack Exhaust Gas Agent[1](GA)	TEN 750AK[2] TEN 750BK[2]	DAAMS	VSL	±40% of Response	Line Challenge every 60 days ± 3 days	6.4.13
29	HVAC Stack Exhaust Gas Agent[1] (Lewisite)	TEN 750AL TEN 750BL TEN 750CL TEN 750DL	MINICAMS	0 - 512 VSL	±25% of Response	Challenge every 24 hours[2], calibrate if it fails the challenge	6.4.13
30	HVAC Stack Exhaust Gas Agent[1] (Lewisite)	TEN 750AL[2] TEN 750BL[2]	DAAMS	VSL	±40% of Response	Line Challenge every 60 days ± 3 days	6.4.13

1 The HVAC ACAMS/MINICAMS causes a staged shutdown as described in Module X
2 The ACAMS/MINICAMS shall be challenged every 24 hours with a 1-hour grace period before or after the 24-hour deadline.
TBD=These values will be incorporated prior to the final public period.

TABLE 6-F
ATLIC TANK HAZARDOUS WASTE MANAGEMENT UNIT
PROCESS DATA & TANK OVERTOP PROTECTION INSTRUMENTATION CALIBRATION

Item No.	Parameter	Instrument Tag ID	Measuring Device	Instrument Range	Accuracy	Calibration/ Preventative Maintenance Frequency	Calibration /Preventative Maintenance Method
1	Lewisite Agent Holding Tank LCS-TANK-8511 Level Indicator	812-LIT-8540	Radar Level Indicating Transmitter	0 - 65 in.	± 1.0% of Span	180 days	6.4.5.3
2	Lewisite Agent Holding Tank LCS-TANK-8511 High-High Level Interlock	812-LSHH-8539	Ultra Sonic Level Switch	Interlock setpoint 65" above tangent	See NOTE 3	360 days	6.4.6
3	Major Spill Collection Tank LCS-TANK-8534 Level Indicator	812-LIT-8590	Radar Level Indicating Transmitter	0 - 65 in	± 1.0% of Span	180 days	6.4.5.3
4	Major Spill Collection Tank LCS-TANK-8534 High-High Level Interlock	812-LSHH-8589	Ultra Sonic Level Switch	Interlock setpoint 65" above tangent	See NOTE 3	360 days	6.4.6
5	Spent Decon Holding Tank SDS-TANK-8523 Level Indicator	829-LIT-8567	Radar Level Indicating Transmitter	0 - 65 in	±1.0% of Span	180 days	6.4.5.3
6	Spent Decon Holding Tank SDS-TANK-8523 High-High Level Interlock	829-LSHH-8566	Ultra Sonic Level Switch	Interlock setpoint 65" above tangent	See NOTE 3	360 days	6.4.6
7	Nitric Acid Holding Tank NSE-TANK-8514 Level Indicator	842-LIT-8547	Radar Level Indicating Transmitter	0 - 65 in.	± 1.0% of Span	180 days	6.4.5.3
8	Nitric Acid Holding Tank NSE-TANK-8514 High-High Level Interlock	842-LSHH-8546	Ultra Sonic Level Switch	Interlock setpoint 65" above tangent	See NOTE 3	360 days	6.4.6
9	Nitric Acid Holding Tank LCS-TANK-8516 Level Indicator	842-LIT-8555	Radar Level Indicating Transmitter	0 - 65 in	± 1.0% of Span	180 days	6.4.5.3
10	Nitric Acid Holding Tank LCS-TANK-8516 High-High Level Interlock	842-LSHH-8554	Ultra Sonic Level Switch	Interlock setpoint 65" above tangent	See NOTE 3	360 days	6.4.6

TABLE 6-F.
ATLIC TANK HAZARDOUS WASTE MANAGEMENT UNIT
PROCESS DATA & TANK OVERTOP PROTECTION INSTRUMENTATION CALIBRATION

Item No.	Parameter	Instrument Tag ID	Measuring Device	Instrument Range	Accuracy	Calibration/ Preventative Maintenance Frequency	Calibration /Preventative Maintenance Method

NOTES
[1] Reserved
[2] The tank tangent is the geometric transition where the cylindrical side meets the ellipsoidal bottom, approximately two inches below the head-to-shell weld
[3] Level switches are not calibrated, they are function tested. The level at which they activate is not adjustable since each switch is positioned in the tank though a flanged opening in the side of the tank.

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7.3 IMPLEMENTATION OF TRAINING PROGRAM

7.4 DETAILED COURSE DESCRIPTIONS

LIST OF ACRONYMS

CAMDS	Chemical Agent Munition Disposal System
CDTF	Chemical Demilitarization Training Facility
CFR	Code of Federal Regulations
CMA	Chemical Materials Agency
JACADS	Johnston Atoll Chemical Agent Disposal System
PAS	Pollution Abatement System
PDAR	Process Data Acquisition and Recording
RCRA	Resource Conservation and Recovery Act
TOCDF	Tooele Chemical Agent Disposal Facility
ATLIC	Area 10 Liquid Incinerator

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TABLE 7-1 INITIAL TRAINING REQUIREMENTS
TABLE 7-2 ANNUAL REVIEW/PROCESS CHANGE REQUIREMENTS

7.1 PERSONNEL TRAINING [R315-3-5(b)(12), R315-8-2.7]

7.1.1 This training plan has been developed in accordance with R315-3-5(b)(12) and R315-8-2.7 as an integral part of the facility's Hazardous Waste Permit for hazardous waste treatment and storage. It has been implemented to ensure that the facility is operated in a manner that protects human health and the environment, both on and off the facility.

7.1.2 The training program trains facility personnel to perform their duties by providing classroom instruction, hands-on Computer Based Training equipment, and supervised on-the-job training. The program provides for both initial and annual review training, relevant to an employee's position, for the facility personnel that manage hazardous waste. This includes, but is not limited to, personnel that handle, move, perform maintenance on, or operate hazardous waste management equipment. The program provides facility personnel with training relevant to their positions to respond effectively to emergencies and familiarization with emergency procedures, emergency equipment, emergency systems and implementation of the contingency plan. Relevant to the employees' duties, instruction is given which teaches hazardous waste management procedures to ensure compliance with this Permit. Included in the training are assessments of each individual's skill and knowledge to determine that the training program objectives have been met.

7.1.3 This training plan provides for the recording and documentation of training which meet hazardous waste requirements. This training plan is reviewed and updated periodically to maintain compliance with permit and regulatory requirements. This training plan is maintained and available at the Tooele Chemical Agent Disposal Facility (TOCDF).

7.1.4 Section 7.2 provides an outline of the training program, while Section 7.3 describes implementation of the training program.

7.2 OUTLINE OF TRAINING PROGRAM [R315-3-5(b)(12), R315-8-2.7(a)(1), R315-8-2.7(a)(2)]

7.2.1 Programmatic Training

7.2.1.1 The Chemical Materials Agency (CMA) has been tasked with carrying out the Army's responsibility for disposing of the United States stockpile of chemical warfare munitions pursuant to Public Law 99-145. There are eight disposal sites in the continental United States where chemical disposal facilities are or may be constructed, with the TOCDF being one of the eight. A programmatic training facility was planned to provide systems training. The programmatic demilitarization training facility is located in the Edgewood Area of the Aberdeen Proving Ground, Maryland, known as the Chemical Demilitarization Training Facility (CDTF).

7.2.1.2 This training provides the skill and knowledge that is common to the eight chemical disposal facilities. The training is provided by using actual process equipment and lines, simulated toxic work areas, a control room, and a non-agent laboratory.

7.2.1.3 The training program was developed from a job/task analysis that defined the technical tasks which are performed by the facility personnel. Skill and knowledge profiles were developed to indicate the items that must be known to perform a particular task. The skill and knowledge profiles were then used to develop the course objectives and supporting training materials.

7.2.1.4 The TOCDF course materials are validated by technical review performed by Government and/or contractor subject matter experts. Any required changes are incorporated prior to using the course material.

7.2.1.5 Not all facility personnel receive advanced training at CDTF; initial training and annual review training are conducted at TOCDF. Tables 7-1 and 7-2 list the courses for initial, advanced, and annual review training. The courses listed in the tables and described in Section 7.4 are taught at either CDTF or TOCDF.

7.2.2 Job Titles and Duties [R315-8-2.7(d)(1)]

7.2.2.1 The original job titles and duties for job positions related to hazardous waste management were determined as part of the training program development process. Each job position shall have a written job description, which lists the requisite skill, education or other qualifications, and the duties for that position. The TOCDF job description and employee name filling that position shall be maintained at TOCDF.

7.2.2.2 Facility personnel are hired using criteria for each job classification, which includes minimum standards for education and previous training or experience.

7.2.2.3 Personnel expected to have access to agent will enter the Army's Chemical Personnel Reliability Program.

7.2.3 Training Content, Frequency, and Techniques R315-8-2.7(d)(3), R315-8-2.7(c)]

7.2.3.1 The classroom lectures, hands-on Computer Based Training, and self-paced study courses that are required by an employee's job position are listed in Table 7-1, Table 7-2 and in the Training Records database. The descriptions of these courses, and the training frequency and techniques, are included in Section 7.4.

7.2.4 Chemical Demilitarization Training Facility (CDTF) Training

7.2.4.1 The CDTF located at Aberdeen Proving Ground, Maryland, is used to provide classroom and hands-on training for those personnel who will benefit from practicing with the unique demilitarization equipment and monitoring support equipment. The CDTF includes actual demilitarization process lines as training equipment, a control room, simulated toxic operations area, maintenance craft laboratories for electrical, instrument, and mechanical training, simulated toxic maintenance area, and a non-agent laboratory. This equipment allows plant operators, maintenance personnel, and analytical and monitoring personnel to have hands-on experience in a nontoxic environment.

7.2.4.2 Major pieces of demilitarization equipment installed at the CDTF are the Rocket Shear Machine/Burster Size Reduction kit, Mine Machine, Projectile/Mortar Disassembly Machine, Multipurpose Demilitarization Machine. Bulk Drain Station. conveyors, airlocks. furnace equipment and the Pick and Place Machine. The equipment is sequenced to follow the demilitarization process from the Unpack Area, through the Explosive Containment Room Vestibule. and through the demilitarization operations. Operation and control of other process equipment not included at the CDTF is simulated using a simulation computer and trainer's console. The non-agent laboratory provides training in monitoring and analytical techniques in the areas of occupational exposure and environmental emission criteria.

7.2.4.3 The personnel who do not require advanced technical training at the CDTF (administrative personnel, support staff, etc.) receive their training at the TOCDF. Personnel attend training at the CDTF in accordance with the requirements of their job position. The detailed course descriptions shown in Section 7.4 may be taught by either TOCDF or CDTF instructors. Personnel in operations and maintenance are only required to train in those sections of the technical courses in Section 7.4 that are needed to operate/maintain the system(s) on which they will work. For example, a Control Room Operator attends applicable modules of Plant Operator training as required by their job position, while a Pollution Abatement System (PAS) Operator attends only those modules. which are relevant to the PAS. Also, a Control Room Operator who operates furnace systems is only trained in the sections applicable to those systems in each technical course.

7.2.5 <u>TOCDF Site Training</u>

7.2.5.1 During training. the employee gains plant knowledge and experience. Department managers and/or supervisors may conduct job specific training or performance demonstrations needed for employees to demonstrate job competency or to complete experience requirements.

7.2.5.2 Employees shall not work unsupervised in the plant until the training requirements for their respective job titles are complete. This includes completing initial and advanced training courses and the satisfactory completion of any on-the-job training.

7.2.6 <u>Annual Review and Other Training</u>

7.2.6.1 Continuing training takes place at the TOCDF and/or CDTF. The job titles, which receive continuing training, are shown in Table 7-2. DPE suit training is only provided to those individuals with the specified job titles who actually make DPE entries. Additional training requirements of specific personnel are based on observation and critique by safety and supervisory personnel. Remedial training is conducted whenever necessary. When job specific requirements warrant change to either training or training material, such as a change in munition processing or agent campaign. retraining shall take place for the relevant job titles without modification to this Permit. Integrated plant exercises are held that may involve small groups or the entire facility in order to evaluate personnel emergency responses and provide team training. These exercise scenarios are also used to evaluate the emergency responses and the contingency procedures.

7.2.6.2 When munition processing or an agent campaign is changed, the facility personnel shall receive specific training before the new campaign begins. The training courses for process change are listed in Table 7-2. Only the training necessary for the process change will be taught. Annual review training provides a review of agent characteristics, hazards and symptoms, emergency response, and waste management. Some of the presentation techniques for annual review training may be changed from formal classroom activities to self-paced study. The self-paced study is directed and monitored by the Training Staff. The employee is given sufficient time to study the material for the course. The same material is reviewed in self-paced study as in formal classroom activities. The detailed course descriptions in Section 7.4 state the applicability of annual review training for each course. Included in the annual refresher training is a review of the agent characteristics and associated hazards/symptoms.

7.2.6.3 In addition to completing required courses, all employees must understand the basic operation of the facility and know and abide by Army regulations applicable to chemical agent facilities, such as surety, security, and safety.

7.2.6.4 Some of the presentation techniques may be changed to self-paced study from formal classroom activities, for individuals hired to fill a job position after the initial work force has been trained. The self-paced training is directed and monitored by the Training Staff and any on-the-job training is directed by the individual's supervisor. The employee is given sufficient time to study the material and take the written test(s) for the course. The new hires develop the same skill and knowledge as if they had attended formal classroom activities. New hires complete required training before working unsupervised in the plant. They shall complete initial training requirements within six months of the date of their employment or assignment to a new position. They shall complete advanced training requirements for their respective job titles prior to working unsupervised in the plant.

7.2.7 Training Manager [R315-8-2.7(a)(2)]

7.2.7.1 The Training Manager at the TOCDF is responsible for ensuring that employees have completed the training requirements and performance demonstrations, if any, for their specified job. Included in the requirements and responsibilities of the Training Manager are the following:

7.2.7.1.1 Schedule training

7.2.7.1.2 Coordinate training with the CDTF.

7.2.7.1.3 Supervise the training of personnel in proper operation of the facility in accordance with federal, state, and local environmental regulations, and the facility's Permit.

7.2.7.1.4 Perform and evaluate classroom instruction.

7.2.7.1.5 Document performance demonstrations, if any, for each job position.

7.2.7.1.6 Administer the personnel training records in accordance with this Permit.

7.2.7.1.7 Ensure the quality of the training program.

7.2.7.1.8 Identify training documents.

7.2.7.1.9 Direct and coordinate training document development.

7.2.7.2 The experience and qualifications of the Training Manager are:

7.2.7.2.1 Trained in hazardous waste management.

7.2.7.2.2 Knowledge of plant operations.

7.2.7.2.3 Prior teaching experience including training plan development experience.

7.2.7.3 The Training Manager is required to become thoroughly familiar with hazardous waste management requirements and facility operations prior to exercising control over this training program.

7.2.8 Training for Emergency Response [R315-8-2.7(a)(3)]

7.2.8.1 Facility personnel are trained to respond properly, as outlined in Attachment 9 (Contingency Plan). to emergency situations based on their job responsibilities. Training includes agent characteristics/symptoms and first aid, response to alarms and evacuation, response to fire alarms, and personal protective equipment. Employees receive training appropriate to their job description that includes emergency response for agent related emergencies. Practical exercises and participation in exercise scenarios provide on-the-job experience. Based on job duties, employees receive training on emergency monitoring equipment operation and maintenance, key parameters for waste feed cut-offs, and ground water contamination.

7.2.8.2 Site hazardous material response training is provided to selected individuals from the site who acts as responders to hazardous material incidents. The site specific training is provided by an instructor whose qualifications meet the regulatory requirements as determined by the Training Manager.

7.2.8.3 Annual review training is provided by TOCDF instructors. Training records for annual review training shall be maintained at the TOCDF.

7.3 IMPLEMENTATION OF TRAINING PROGRAM [R315-8-2.7(b), R315-8-2.7(d)(4), R315-8-2.7(e)]

7.3.1 Facility personnel that manage hazardous waste shall successfully complete their initial training within six months after their date of employment, assignment to the facility, or assignment to a new position at the facility. Prior to completing the advanced training, personnel that manage hazardous waste shall be supervised while performing hazardous waste duties.

7.3.2 Training operations began prior to systemization, continue through plant operations, and end when closure is complete. The training program includes initial, advanced, and annual review training. Personnel in operations and maintenance are only required to complete the sections of the technical courses described in Section 7.4, which are relevant to the system(s), which the individual will operate or maintain.

7.3.3 Employees are assigned to training courses that meet the needs of the facility and ensure compliance with regulatory requirements. Each course has its own unique set of objectives for skill and knowledge that must be mastered before the employee passes the course. The instructor records attendance and performance for each employee. The Training Department tracks the training given to and completed by each employee.

7.3.4 Employees who cannot complete the training requirements for their job position will have their training records and performance evaluated. The evaluation will be conducted by the Training Manager and the individual's manager or department head. Recommendations on the employee's suitability to the job or the project will be made to the Human Resources Department.

7.3.5 The following information and documents shall be maintained and available at the TOCDF:

7.3.5.1 Job title for each position at the facility related to hazardous waste management, and the name of the employee(s) filling each job.

7.3.5.2 A written job description for each job title.

7.3.5.3 A written description of the type and amount of initial, advanced, and annual review training given to each person named.

7.3.5.4 Records that document the successful completion of the training and any experience required for each person named.

7.3.6 The training records and documents shall be kept at least until closure of the facility. Training records on former employees shall be kept at least three years from the date the employee last worked at the facility. The Training Plan shall be maintained and available at the TOCDF.

7.4 **Detailed Curriculum Descriptions [R315-8-2.7(d)(3)]**

7.4.1 The following curriculum categories consist of one or more training courses. Employees are required to successfully complete at least one training course in any category required for their job position. Employees receive training in the courses which are necessary for their job position. These courses may be applicable for initial, advanced, annual review, or process change training. Initial training shall be completed within six months. Advanced training shall be completed following the initial training period but prior to the employee working unsupervised in the plant. Annual review training shall be accomplished within the same calendar month (anniversary month) plus or minus 30 days of initial training and may consist of self-paced study. Employees hired prior to the effective date of this Permit may use their last refresher date as the date of initial training. For a change in munition processing or agent campaign, only the training necessary for the change is provided. Courses may be conducted by either CDTF or TOCDF personnel at either facility. Topics covered in the General Employee and Safety and Health categories meet the OSHA requirements for Hazardous Waste Operations (HAZWOPER) for a TSDF facility.

7.4.2 General Employee: This curriculum provides employees with general information about the TOCDF. This curriculum is an initial training requirement. Annual review training is applicable. Process change training is not applicable. Topics covered in this curriculum include: Chemical Stockpile Disposal Program Overview; Chemical Agent Description. Response to Alarms, Description of Munitions/Agent Inventory. Process Flow Overview, Personal Protective Equipment for Site Entry, Quality Control Overview. Federal and State Regulatory Authority. Emergency Response Plan and Organization. Safety Program Plan, Accident Prevention Plan. Industrial Hygiene Plan. Medical Plan. Training Plan. Quality Assurance Plan, Security and Safety.

7.4.3 Safety and Health: This curriculum provides training that meets applicable OSHA and Army regulatory requirements for Operations and Emergency Response. This curriculum is an initial training requirement. Annual review training is applicable. Process change training is not applicable. Employees receive training in the courses which are necessary for their job positions. Topics covered in this curriculum include: Hazard Communication, CPR, First Aid, Confined Space, Lockout/Tagout. Advanced Safety and Health courses are provided to selected employees who act as part of the TOCDF Emergency Response Organization (ERO).

7.4.4 Systems Descriptions: This curriculum describes the operation and control of the plant systems and is broken into training courses and taught at the block diagram, piping and instrumentation drawing level, as appropriate for the job position. Employees receive only the courses necessary for job performance. These course are intended for employees who operate or maintain plant equipment and their managers/supervisors. This curriculum is an initial training requirement. Annual review and process change training are not applicable. Topics covered in this curriculum include: Major Components/Equipment and Construction; System Operation; System Flow; System Key Parameters; System Interlocks; System Alarms; and System Waste Feed Cut-off.

7.4.5 Toxic Area Personal Protective Equipment: This curriculum is an initial training requirement. Annual review training is applicable. Employees receive training in the courses which are necessary for their job positions. Topics covered in this curriculum include: Supplied Air PPE Levels of Dress (DPE or OSHA-A), Air Purifying PPE Levels of Dress (Levels C and D), and Toxic Area Entry/Exit protocol. This curriculum provides a description of all levels of protective clothing, toxic area entry requirements and procedures, decontamination techniques, toxic area entry monitoring activities, and personnel emergencies in toxic areas. Practical exercises are included for suit-up activities and decontamination.

7.4.6 Plant Operations: This curriculum is intended for plant operators, their supervisors, and plant shift managers. Courses build on previous training for operators and supervisors who handle agent/munitions, control or handle waste streams associated with the demilitarization processes. Employees receive training in the courses which are necessary for their job positions. Hands-on training is provided for operators to develop the skills necessary to operate plant equipment during normal and emergency conditions. This curriculum is an advanced training requirement. Annual review training is not applicable. Process change training is applicable. Topics covered in this curriculum include: Control Description and Response; Interpretation of System Indication and Response; System Operation; System Safety, Chemical Surety, and Environmental Requirements; Normal System Operating Procedures; Abnormal/Emergency Process

System Procedures: Data Logging: Procedure Compliance and Process Control System Overview.

7.4.7 Plant Maintenance: This curriculum provides maintenance craftsmen and supervisors with the skills and knowledge to maintain various pieces of plant equipment. This curriculum is an advanced training requirement. Annual review training is not applicable. Process change training is applicable. Topics covered in this curriculum include: Normal Operation; Troubleshooting; Maintenance Techniques and Methods; Safety and Environmental Requirements; and Data Logging.

7.4.8 Monitoring: This curriculum provides monitoring personnel and supervisors with a description of monitoring activities and equipment. It provides skills and knowledge on the agent and industrial pollutant monitoring equipment used at the facility. This curriculum is an advanced training requirement. Annual review training is not applicable. Process change training is applicable. Topics covered in this curriculum include: Operation and Maintenance of Agent Monitors; Operation and Maintenance of Non-Agent Monitors; Troubleshooting Equipment Faults; Response to Agent and Non-Agent Monitor Alarms; Laboratory Monitoring Procedures; and Sample Collection Requirements and Methods.

7.4.9 Laboratory: This curriculum is designed to introduce laboratory personnel to the plans, procedures and equipment necessary to perform the laboratory mission in a safe and environmentally responsible manner in accordance with applicable regulations. This curriculum is an advanced training requirement. Annual review training is not applicable. Process change training is applicable. Topics covered in this curriculum include: Laboratory Analytical Procedures; Laboratory Safety; Chemical Hygiene: Hazardous Waste Procedures: Contingency Procedures: Component Fault Isolation Techniques; Equipment Maintenance Safety; and Component Replacement.

7.4.10 Process Control System: This course is intended for Controls Engineers and Process Data Acquisition and Recording (PDAR) Engineers. It provides a detailed explanation of the specific components of the process control system. This course is an advanced training requirement. Annual review and process change training are not applicable. Topics covered in this course include: Equipment Operation: Troubleshooting; and Programming.

Table 7-1
Initial/Advanced Training Requirements

Initial Training	X	X	X	X					
Advanced Training					X	X	X	X	X
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
TOCDF Personnel									
General Manager	X	X		X					
Deputy General Manager – Technical Support/Risk Manager	X	X		X					
Deputy General Manager – Closure Integration	X	X		X				X	
Permitting Supervisor	X	X		X					
Environmental Manager	X	X		X					
Environmental Shift Inspector	X	X							
Environmental Inspector/Auditor	X	X							
Compliance/Audit Supervisor	X	X		X					
Permitting Technician/Specialist	X	X		X					
Environmental Test Specialist	X	X		X					
Closure Electrical Engineer	X	X		X					
Closure Environmental Engineer Technologist	X	X		X					
Closure Mechanical Engineer	X	X		X					
Closure Manager	X	X		X					
Secondary Waste Manager	X	X		X					
Environmental Technician	X	X		X					
Project Manager - Mustard	X	X		X					
Trial Burns Project Manager	X	X		X					
Area 10/Secondary Waste Operations Manager	X	X		X				X	
Operator/Secondary Waste	X	X							
Operations Supervisor - Mustard	X	X		X	X				X
Environmental Leader	X	X		X					
Changeover Manager	X	X	X	X				X	
Facility Modification Specialist	X	X	X	X				X	
Surety & Security Manager	X	X		X					
Performance and Quality Assurance Manager	X	X		X					
Quality Manager	X	X		X					

Table 7-1
Initial/Advanced Training Requirements

Initial Training	X	X	X	X					
Advanced Training					X	X	X	X	X
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
Quality Support Specialist	X	X		X					
Quality Technician	X	X		X					
Quality Oversight Specialist	X	X		X					
Quality Support Supervisor	X	X		X					
Quality Management Support Technician	X	X		X					
Safety Manager	X	X		X					
Deputy Safety Manager	X	X		X					
Shift Safety Specialist	X	X		X					
Safety Engineer/Technologist	X	X		X					
Industrial Hygienist	X	X		X					
Agent Munitions/Safety Specialist	X	X		X					
Security Specialist	X	X		X					
Emergency Preparedness Administrator	X	X		X					
Training Manager	X	X		X					
Training Instructor /Simulator Specialist	X	X		X					
Training Specialist/Instructor	X	X		X					
Instructional Technologist	X	X		X					
Operations and Maintenance Manager	X	X		X					
Deputy Operations and Maintenance Manager	X	X		X					
Assistant Operations Manager	X	X		X					X
Plant Shift Manager	X	X		X					X
Maintenance Manager	X	X		X					
Systems Engineer	X	X		X					
Controls Engineer	X	X		X					X
Controls Engineer Supervisor	X	X		X					X
Operations Supervisor	X	X		X	X				X
Control Room Supervisor	X	X	X	X		X	X		X
Hazmat/Hotline/DSA/Supervisor	X	X	X	X	X				
Control Room Operator	X	X		X	X				X
PAS Operator	X	X	X	X	X				
BRA/RHA Operator	X	X		X	X				

Table 7-1
Initial/Advanced Training Requirements

Initial Training	X	X	X	X					
Advanced Training					X	X	X	X	X
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
Utilities Operator	X	X		X	X				
DSA Operator	X	X	X	X	X				
CHB/UPA Operator	X	X	X	X	X				
Operations Munition Coordinator	X	X	X	X	X				X
Maintenance Supervisor	X	X	X	X					
Maintenance Engineer	X	X		X					
Calibration Coordinator	X	X							
Planner	X	X							
Electrical Technician	X	X	X	X		X			
Instrument Installer	X	X							
I&C Technician	X	X	X	X		X			
Mechanical Technician	X	X	X	X		X			
PM/CM Technician	X	X							
Preventative Maintenance Coordinator	X	X		X					
Modification Maintenance Supervisor	X	X		X					
Warehouse Supervisor	X	X							
Hazardous Waste Manager	X	X	X	X	X				
Hazardous Waste Coordinator	X	X	X	X	X				
Senior Hazardous Waste Technician	X	X	X	X	X				
Hazardous Waste Technician	X	X	X	X	X				
Hazardous Waste Tracking Support Specialist	X	X							
Laboratory Manager/Battelle Senior Site Manager	X	X		X			X	X	
Project Manager-Secondary Waste and Closure	X	X		X				X	
Laboratory QC Manager	X	X		X			X	X	
QC Analytical Inspector	X	X		X			X	X	
QC Analytical Inspector Supervisor / QC Specialist	X	X		X			X	X	
Quality Engineer	X	X		X	X				X
Special Projects Chemist	X	X	X	X				X	
QC Monitoring Inspector Supervisor / QC Specialist	X	X		X			X	X	
QC Monitoring Inspector	X	X		X			X	X	
Laboratory Monitoring Manager	X	X		X			X		

Table 7-1
Initial/Advanced Training Requirements

Initial Training	X	X	X	X					
Advanced Training					X	X	X	X	X
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
CEMS Specialist	X	X		X			X		
Monitoring Operations Manager	X	X		X			X	X	
Monitoring Coordinating Manager	X	X		X			X	X	
Master Technician	X	X		X			X		
Monitoring Foreman	X	X		X			X		
Senior Instrument Tech/Lead	X	X		X			X	X	
Senior Monitoring Technician	X	X		X			X	X	
Monitoring Technician I	X	X	X	X			X		
Monitoring Technician II	X	X	X	X			X		
Senior Laboratory Support Technician	X	X	X	X				X	
Monitoring Scientist	X	X		X			X	X	
Operations Analytical Support Manager	X	X	X	X			X	X	
Instrument Technician	X	X		X			X	X	
Laboratory Analytical Manager	X	X		X				X	
Laboratory Shift Supervisor	X	X		X				X	
DAAMS Team Lead	X	X		X				X	
Senior GC Operator	X	X		X				X	
GC Operator	X	X		X				X	
Logistician	X	X		X				X	
Solutions Chemistry Lead	X	X	X	X				X	
Agent Solutions Chemist	X	X	X	X				X	
Metals Chemist	X	X	X	X				X	
Mercury Metals Chemist	X	X		X				X	
Laboratory Data Analyst Demil Tech I	X	X		X				X	
Laboratory Data Analyst Demil Tech II	X	X		X				X	
Plant Systems Engineering Manager	X	X		X					
Project Engineering Supervisor	X	X		X					
Engineering Manager	X	X		X					
Engineering Supervisor	X	X		X					
Electrical Engineer Design	X	X		X					X
Electrical Engineer	X	X		X					X

Table 7-1
Initial/Advanced Training Requirements

Initial Training	X	X	X	X					
Advanced Training					X	X	X	X	X
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
Mechanical Engineer – Design	X	X		X					
Engineering Technologist – Design	X	X		X					
Engineering/Technologist	X	X		X					
Engineering Technician	X	X		X					
PDAR Engineer	X	X		X					
PDAR Technician	X	X		X					
Environmental Engineer/Technologist	X	X		X					
Project Specialist	X	X		X					
ATLIC ~~GA / Lewisite~~ Personnel									
Analytical Supervisor	X	X		X	X			X	
Area 10/Secondary Waste Operations Manager	X	X		X				X	
Battelle/CAMDS Monitoring Manager	X	X		X			X	X	
CAMDS/DCD Analytical Manager	X	X		X				X	
CD Instrument Technician	X	X		X	X		X	X	
CD Instrument Technician	X	X		X	X		X	X	
CD Master Technician	X	X		X	X		X	X	
CD Monitoring Foreman	X	X		X	X		X	X	
CD Monitoring Technician II	X	X		X	X		X	X	
CD Principal Research Scientist	X	X		X	X			X	
CD Senior GC Operator	X	X		X	X			X	
CD Senior Laboratory Support Technician	X	X	X	X	X			X	
Closure Laboratory and Monitoring Manager	X	X		X	X			X	
Control Center Operator	X	X	X	X	X			X	
Controls / I&C/ Electrical Technician	X	X	X	X	X				
GA/Lewisite Mechanical Technician	X	X		X	X				
GA/Lewisite Monitoring Manager	X	X		X	X			X	
ICP Chemist	X	X		X	X			X	
Junior Chemist	X	X		X	X			X	
Junior GC Operator	X	X		X	X			X	
Junior Monitoring Operator	X	X		X	X			X	
Monitoring Supervisor	X	X		X	X			X	

Table 7-1
Initial/Advanced Training Requirements

Initial Training	X	X	X	X					
Advanced Training					X	X	X	X	X
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
Senior Chemist	X	X		X	X			X	
Senior GC Operator	X	X		X	X			X	
Senior Monitoring Operator	X	X		X	X			X	
Shift Lead - Monitoring	X	X		X	X			X	
Shift Leader - Laboratory	X	X		X	X			X	

Table 7-2

Annual Review/Process Change Requirements

Annual Review Training	X	X	X						
Process Change Training					X	X	X	X	
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
General Manager	X	X							
Deputy General Manager – Technical Support/Risk Manager	X	X							
Deputy General Manager – Closure Integration	X	X						X	
Permitting Supervisor	X	X							
Environmental Manager	X	X							
Environmental Shift Inspector	X	X							
Environmental Inspector/Auditor	X	X							
Compliance/Audit Supervisor	X	X							
Permitting Technician/Specialist	X	X							
Environmental Test Specialist	X	X							
Closure Electrical Engineer	X	X							
Closure Environmental Engineer Technologist	X	X							
Closure Mechanical Engineer	X	X							
Closure Manager	X	X							
Secondary Waste Manager	X	X							
Environmental Technician	X	X							
Project Manager-Mustard	X	X							
Trial Burns Project Manager	X	X							
Area 10/Secondary Waste Operations Manager	X	X						X	
Operator/Secondary Waste	X	X							
Operations Supervisor - Mustard	X	X			X				
Environmental Leader	X	X							
Changeover Manager	X	X	X					X	
Facility Modification Specialist	X	X	X					X	
Surety & Security Manager	X	X							
Performance and Quality Assurance Manager	X	X							
Quality Manager	X	X							

Table 7-2

Annual Review/Process Change Requirements

Annual Review Training	X	X	X						
Process Change Training					X	X	X	X	
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	***Toxic Area PPE***	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
Quality Support Specialist	X	X							
Quality Technician	X	X							
Quality Oversight Specialist	X	X							
Quality Support Supervisor	X	X							
Quality Management Support Technician	X	X							
Safety Manager	X	X							
Deputy Safety Manager	X	X							
Shift Safety Specialist	X	X							
Safety Engineer/Technologist	X	X							
Industrial Hygienist	X	X							
Agent Munitions/Safety Specialist	X	X							
Security Specialist	X	X							
Emergency Preparedness Administrator	X	X							
Training Manager	X	X							
Training Instructor /Simulator Specialist	X	X							
Training Specialist Instructor	X	X							
Instructional Technologist	X	X							
Operations and Maintenance Manager	X	X							
Deputy Operations and Maintenance Manager	X	X							
Assistant Operations Manager	X	X							
Plant Shift Manager	X	X							
Maintenance Manager	X	X							
Systems Engineer	X	X							
Controls Engineer	X	X							
Controls Engineer Supervisor	X	X							
Operations Supervisor	X	X			X				
Control Room Supervisor	X	X	X			X	X		
Hazmat/Hotline/DSA/Supervisor	X	X	X		X				
Control Room Operator	X	X			X				
PAS Operator	X	X	X		X				

Table 7-2

Annual Review/Process Change Requirements

Annual Review Training	X	X	X						
Process Change Training					X	X	X	X	
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	***Process Controls***
BRA/RHA Operator	X	X			X				
Utilities Operator	X	X			X				
DSA Operator	X	X	X		X				
CHB/UPA Operator	X	X	X		X				
Operations Munition Coordinator	X	X	X		X				
Maintenance Supervisor	X	X	X						
Maintenance Engineer	X	X							
Calibration Coordinator	X	X							
Planner	X	X							
Electrical Technician	X	X	X			X			
Instrument Installer	X	X							
I&C Technician	X	X	X			X			
Mechanical Technician	X	X	X			X			
PM/CM Technician	X	X							
Preventative Maintenance Coordinator	X	X							
Modification Maintenance Supervisor	X	X							
Warehouse Supervisor	X	X							
Hazardous Waste Manager	X	X	X		X				
Hazardous Waste Coordinator	X	X	X		X				
Senior Hazardous Waste Technician	X	X	X		X				
Hazardous Waste Technician	X	X	X		X				
Hazardous Waste Tracking Support Specialist	X	X							
Laboratory Manager/Battelle Senior Site Manager	X	X					X	X	
Project Manager-Secondary Waste and Closure	X	X						X	
Laboratory QC Manager	X	X					X	X	
QC Analytical Inspector	X	X					X	X	
QC Analytical Inspector Supervisor / QC Specialist	X	X					X	X	
Quality Engineer	X	X			X				
QC Monitoring Inspector Supervisor / QC Specialist	X	X					X	X	
QC Monitoring Inspector	X	X					X	X	

Table 7-2
Annual Review/Process Change Requirements

Annual Review Training	X	X	X						
Process Change Training					X	X	X	X	
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
Special Projects Chemist	X	X						X	
Laboratory Monitoring Manager	X	X					X		
CEMS Specialist	X	X					X		
Monitoring Operations Manager	X	X					X	X	
Monitoring Coordinating Manager	X	X					X	X	
Master Technician	X	X					X		
Monitoring Foreman	X	X					X		
Senior Instrument Tech/Lead	X	X					X	X	
Senior Monitoring Technician	X	X					X	X	
Instrument Technician	X	X					X	X	
Monitoring Technician I	X	X	X				X		
Monitoring Technician II	X	X	X				X		
Senior Laboratory Support Technician	X	X	X					X	
Monitoring Scientist	X	X					X	X	
Operations Analytical Support Manager	X	X	X				X	X	
Laboratory Analytical Manager	X	X						X	
Laboratory Shift Supervisor	X	X						X	
DAAMS Team Lead	X	X						X	
Senior GC Operator	X	X						X	
GC Operator	X	X						X	
Logistician	X	X						X	
Solutions Chemistry Lead	X	X	X					X	
Agent Solutions Chemist	X	X	X					X	
Metals Chemist	X	X	X					X	
Mercury Metals Chemist	X	X						X	
Laboratory Data Analyst Demil Tech I	X	X						X	
Laboratory Data Analyst Demil Tech II	X	X						X	
Plant Systems Engineering Manager	X	X							
Project Engineering Supervisor	X	X							
Engineering Manager	X	X							

Table 7-2

Annual Review/Process Change Requirements

Annual Review Training	X	X	X						
Process Change Training					X	X	X	X	
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
Engineering Supervisor	X	X							
Electrical Engineer - Design	X	X							
Electrical Engineer	X	X							
Mechanical Engineer - Design	X	X							
Engineering Technologist - Design	X	X							
Engineering/Technologist	X	X							
Engineering Technician	X	X							
PDAR Engineer	X	X							
PDAR Technician	X	X							
Environmental Engineer Technologist	X	X							
Project Specialist	X	X							
GA / Lewisite Personnel									
Analytical Supervisor	X	X							
Area 10/Secondary Waste Operations Manager	X	X							
Battelle/CAMDS Monitoring Manager	X	X							
CAMDS/DCD Analytical Manager	X	X							
CD Instrument Technician	X	X							
CD Instrument Technician	X	X							
CD Master Technician	X	X							
CD Monitoring Foreman	X	X							
CD Monitoring Technician II	X	X							
CD Principal Research Scientist	X	X							
CD Senior GC Operator	X	X							
CD Senior Laboratory Support Technician	X	X	X						
Closure Laboratory and Monitoring Manager	X	X							
Control Center Operator	X	X	X						
Controls / I&C/ Electrical Technician	X	X	X						
GA/Lewisite Mechanical Technician	X	X							
GA/Lewisite Monitoring Manager	X	X							
ICP Chemist	X	X							

Table 7-2

Annual Review/Process Change Requirements

Annual Review Training	X	X	X						
Process Change Training					X	X	X	X	
Curriculum Number	1	2	3	4	5	6	7	8	9
CURRICULUM TITLE / **JOB TITLE**	**General Employee**	**Safety and Health**	**Toxic Area PPE**	**Systems Descriptions**	**Plant Operations**	**Plant Maintenance**	**Monitoring**	**Laboratory**	**Process Controls**
Junior Chemist	X	X							
Junior GC Operator	X	X							
Junior Monitoring Operator	X	X							
Monitoring Supervisor	X	X							
Senior Chemist	X	X							
Senior GC Operator	X	X							
Senior Monitoring Operator	X	X							
Shift Lead - Monitoring	X	X							
Shift Leader - Laboratory	X	X							

Table 7-1 and Table 7-2
Initial and Continuing Training Requirements

ACRONYM LIST FOR JOB TITLES

DSA Operator	Demilitarization Protective Ensemble Support Area Operator
CHB/UPA Operator	Container Handling Building/Unpack Area Operator
BRA/RHA Operator	Brine Reduction Area/Residue Handling Area Operator
PAS Operator	Pollution Abatement System Operator
I&C Technician	Instrumentation and Control Technician Operator
DAAMS Process Supervisor	Depot Area Air Monitoring System Process Supervisor
GC Operator	Gas Chromatograph Operator
Senior GC Operator	Senior Gas Chromatograph Operator
PDAR Engineer	Process Data Acquisition and Recording Engineer

ACRONYMS

ACAMS	Automatic Continuous Air Monitoring System
ATLIC	Area 10 Liquid Incinerator
BDS	Bulk Drain Station
BMS	Burner Management System
BRA	Brine Reduction Area
BRS	Burster Removal Station
BSA	First Floor Buffer Storage Area
BSRM	Burster Size Reduction Machine
CAIRAP	Chemical Accident/Incident Response and Assistance Plan
CAL	Chemical Assessment Laboratory
CAMDS	Chemical Agent Munitions Disposal System
CCEE	Control Center Equipment Enclosure
CFR	Code of Federal Regulations
CDS	Central Decon System
CHB	Container Handling Building
CO	Carbon monoxide
CO_2	Carbon dioxide
Composition B	60% RDX, 39.5% TNT, 0.5% Calcium Silicate
CON-OP	Control Room Operator
DAAMS	Depot Area Air Monitoring System
DCD	Deseret Chemical Depot
DFS	Deactivation Furnace System
ECR	Explosive Containment Room
ECV	Explosive Containment Room Vestibule
E-stop	Emergency Stop
FCS	Facility Control System
FSSS	Flame Safety Shutdown System
GA	Tabun (Ethyl N, N-dimethylphosphoramide-cyanidate)
GB	Sarin, Isopropyl methylphosphonofluoridate
H	Levinstein mustard, bis (2-chloroethyl) sulfide
H_2O	Water
HD	Distilled mustard, bis (2-chloroethyl) sulfide
HMIs	Human Machine Interfaces
HOA	Hand-Off Auto
HS	Hand Station
HT	Mustard, 60% HD and 40% T
I/O	Input/Output
LCS	Local Control System
Lewisite	Dichloro-(2chlorovinyl) arsine
LIC	Liquid Incinerator
LOR	Local-Off Remote
MDB	Munitions Demilitarization Building
MPF	Metal Parts Furnace
MDM	Multipurpose Demilitarization Machine
N_2	Nitrogen
NFPA	National Fire Protection Association
NO	Nitrogen oxide

NO_2	Nitrogen dioxide
OWS	Operator Workstation
PAS	Pollution Abatement System
PLC	Programmable Logic Controller
PMD	Projectile/Mortar Disassembly Machine
PPE	Personal Protective Equipment
RDX	Cyclotrimethylenetrinitramine
RHA	Residue Handling Area
SDS	Spent Decontamination Solution; Spent Decontamination System
T	Bis[2(2-chloroethylthioethyl)] ether
TC	Ton Container
TEAD	Tooele Army Depot
TMA	Toxic Maintenance Area
TOCDF	Tooele Chemical Agent Disposal Facility
TOX	Toxic Cubicle
UPA	Unpack Area
UPMC	Upper Munitions Corridor
VX	O-ethyl-S(2-diisopropylaminoethyl) methyl phosphonothiolate

8.1 DOCUMENTATION OF PREPAREDNESS AND PREVENTION REQUIREMENTS [R315-8-3.3; R315-8-3.6]

8.1.1 Equipment Requirements

8.1.1.1 The Tooele Chemical Agent Disposal Facility (TOCDF) and Area 10 Liquid Incinerator (ATLIC) maintains an extensive inventory of emergency equipment. Telephone and public address loudspeakers are available throughout the facility and in all work areas for use in case of emergencies. The telephone system is available for internal as well as external communications. Portable fire extinguishers, a sprinkler system, a halon system, and a FM-200/FE-227 system are all built into the facility to minimize the threat of fire. Attachment 5 (Inspection Plan) contains lists of emergency equipment that are inventoried on a regular basis. Attachment 9 (Contingency Plan) contains a list of additional emergency equipment available from Deseret Chemical Depot (DCD) and Tooele Army Depot (TEAD).

8.1.1.2 Pumps are installed at the existing wells to produce the anticipated 616,000 gallons per day required at Deseret Chemical Depot (DCD). The well pumps supply water to two reservoirs (with a combined capacity of one million gallons). These reservoirs supply the water distribution system at DCD. These reservoirs provide sufficient water for operations at the TOCDF and ATLIC, and the fire water requirement of 330,000 gallons. All water storage tank system components are designed to meet National Fire Protection Association (NFPA) standards.

8.1.2 Aisle Space Requirements

8.1.2.1 Areas that will be used by TOCDF for container storage include t~~T~~he Container Handling Building, (CHB). Unpack Area (UPA), Explosive Containment Room Vestibule (ECV), the Upper Munitions Corridor (UPMC), the S-2 warehouse, the Toxic Maintenance Area (TMA), and Igloos 1632 and 1633~~ will be used for container storage~~. The storage areas are arranged to provide efficiency in container storage: to provide adequate access for fire-fighting and proper maneuvering of a forklift (except in the ECV and UPMC); to meet minimum fire code requirements; and to allow easy access for personnel and equipment, which is needed for inspections and emergency operations.

8.1.2.2 The CHB stores the munitions before demilitarization processing. There is a minimum of 2.5 feet of aisle space associated with the containers stored in the TMA Container Storage Area, the S-2 warehouse, and Igloos 1632 and 1633. An aisle space will be available for fork lift operation in the S-2 warehouse and Igloos 1632 and 1633. There is a minimum of six feet of aisle space between overpacks (On-site Containers (ONCs) stored in the CHB. There are no aisle space requirements for the containers stored within an overpack. Aisle space within an overpack is not relevant or needed since the overpacks are monitored and, if a release is detected, the overpacks and leaking munitions are managed as described in Attachment 12 (Containers).

8.2 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT [R315-3-2.5(b)(8)]

8.2.1 Loading/Unloading of Hazardous Waste [R315-3-2.5(b)(8)(i)]

8.2.1.1 The wastes managed at ~~the~~ TOCDF and ATLIC are described in Attachment 2 (Waste Analysis Plan). The scrubber brines are pumped from the incinerator scrubber towers to the brine tanks. The Spent Decon Solution (SDS) is collected in sumps, pumped to the spent decontamination tanks, and then transferred to the Liquid Incinerator (LIC). The ~~GB sodium hydroxide based~~ spent decontamination solutions may be shipped off site if the requirements in the Attachment 2 (Waste Analysis Plan) are met.

8.2.1.2 *The munitions and bulk containers are delivered to the TOCDF CHB in overpacks via* transport truck. They are unloaded from the transport truck and placed in the CHB. From the CHB, the munitions are transported by a conveyor to a lift system and then on a conveyor to the Munitions Demilitarization Building (MDB). There they are unloaded in the Unpack Area (UPA) where processing begins.

8.2.1.2.1 *Ton containers (TCs) that will be processed at the ATLIC will be brought directly from* storage in Area 10 to the processing area, which is in close proximity. The TC is then placed on the transfer table. From the transfer table, the TC is placed in the glovebox, where the agent GA or Lewisite is drained and processing begins.

8.2.1.3 Reserved

8.2.1.4 The incinerator ash and residue at TOCDF are ~~handled in the same manner as the salts. These wastes, like the salt, are~~ discharged directly to containers. The spent charcoal from the ventilation system at TOCDF is removed from the ventilation system by personnel in Personal Protective Equipment (PPE) clothing. The charcoal is placed in containers that are compatible with the material to be stored and meet or exceed the requirements stated in R315-8-9.3 and R315-7-16.3.

8.2.1.4.1 Waste at the ATLIC such as residue from the Pollution Abatement System (PAS) *particulate removal device, and expended PAS carbon filters and HEPA filters used in* the PAS will be monitored for the presence of residual agent and shipped off-site for disposal when the requirements in the Attachment 2 (Waste Analysis Plan) are met. Operators handling waste will wear the appropriate level of PPE. All waste is placed in containers that meet or exceeds the requirements stated in R315-8-9.3 and R315-7-16.3.

8.2.1.5 The following procedures will be followed when transferring residue from the TOCDF Deactivation Furnace System (DFS) cyclone to the associated receiving container to minimize fugitive emissions and ensure proper management:

8.2.1.5.1 The transfer funnel that is used to connect the cyclone discharge pipe to the receiving container will be sealed (e.g., via duct tape, etc.) to the receiving container and the *cyclone discharge pipe.*

8.2.1.5.2 The building that encompasses the DFS cyclone discharge will be kept closed except *when inspecting the receiving container and discharge area, entering and exiting the* building for operation and maintenance, and moving containers into and out of the building.

8.2.1.5.3 The interior of the building will be monitored for the presence of agent prior to opening.

8.2.1.5.4 The building shall be ventilated to the MDB ventilation system when the DFS is operational or when waste is present in the cyclone discharge building.

8.2.1.5.5 Unless the Permittee demonstrates that the agent concentration of a sample of the residue generated from the operation of the DFS Cyclone is below 200 ppb for H/HD/HT, the residue must be placed into permitted storage.

8.2.2 **Runoff [R315-3-2.5(b)(8)(ii)]**

8.2.2.1 At TOCDF, rRunoff from all hazardous waste handling areas to other areas of the facility or the environment is prevented by facility design features. Waste handling in the CHB, MDB, and RHA takes place in enclosed buildings. These measures should minimize the potential for precipitation runoff to reach these areas. The waste handling areas of the CHB and MDB have sumps for collection of spilled hazardous waste. The floor sumps for all toxic management areas of the MDB have provisions for transferring sump contents to spent decontamination tanks (see Section 8.2.6). The other areas have passive sumps, which are pumped dry when liquids accumulate in them.

8.2.2.1.2 Runoff from all hazardous waste handling areas to other areas of the ATLIC or the environment is also prevented by facility design features. The handling and transfer of hazardous waste in the Central Decon System (CDS) and Spent Decon System (SDS) takes place in a secure enclosure, which eliminates storm water exposure. The area where the Central Decon System (CDS) is located is bermed and the floor slopes to a collection sump that will collect any spills. The collection sump has a sump pump to remove any spilled decon from this area. Spent Decon System (SDS) sumps are located in the rooms where equipment and personnel are to be deconned. The floors in these areas are also sloped to collect spills. The sumps are concrete with a steel pan and protective liner. Leak detection has been placed between the concrete sump and the steel pan.

8.2.3 **Water Supplies [R315-3-2.5(b)(8)(iii)]**

8.2.3.1 The processing and storage of all hazardous waste at the TOCDF and ATLIC takes place in enclosed structures with concrete bases that prevent the downward percolation of wastes or liquids.

8.2.4 **Equipment and Power Failure [R315-3-2.5(b)(8)(iv)]**

8.2.4.1 **TOCDF Equipment Failure Control**

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

8.2.4.1.2 The centralized process control system uses process controllers with functional keyboard or keyboards for operator interface and control of the system as required, control screens for displays, a printer to print out alarms and messages, and an event recorder or data logger. This equipment is installed in the Control Room and is defined as the Master

8.2.4.1.9 **ATLIC Equipment Failure Control**

8.2.4.1.9.1 The Facility Control System (FCS) at ATLIC is designed to safely and efficiently monitor and control the process systems, process support systems, and control systems that are located within the facility. The FCS is composed of microprocessor-based electronic controllers and Human Machine Interfaces (HMIs) with the primary function of assisting operations personnel in the safe startup, monitoring, control, data logging, alarming, and planned shutdown of the facility.

8.2.4.1.9.2 The FCS is configured to provide system graphic generation, control configuration, data collection, data storage, report generation, and programming. The FCS has printers for alarm and reporting purposes. These printers are connected to the FCS control network directly or via print servers or computers; they are located in the Control Center Equipment Enclosure (CCEE). The FCS has a firewall to protect the integrity of the FCS network.

8.2.4.1.9.3 Operation of the FCS is conducted from a CCEE in proximity to the ATLIC. There are three individual control consoles for Operations personnel. Each console houses a FCS operator workstation (OWS) consisting of two (2) LCD screens and any other equipment necessary to perform automatic or manual control and monitoring tasks.

8.2.4.1.9.4 The Burner Management System (BMS) has a flame safety shutdown system (FSSS). The BMS interfaces with the furnace control PLC to ensure the safety of all furnace purge, burner light-off, and burner operations. Control is maintained through fuel and waste feed block valves, pilot valves, and the burner igniters. The BMS provides control signals to the Programmable Logic Controller (PLC) for operation of the fuel control valves and monitors the combustion air blower operation, fuel and combustion air control valves, and combustion air flow to verify they are operational for safe combustion. The BMS locks out the burners and signals the PLC to stop related equipment if any safety interlock is violated. Activation of a reset by an operator is required to restore burner operation following a BMS lock-out of the burners.

8.2.4.1.9.5 A purge bypass switch is provided that allows the operator to bypass the purge cycle for relight of a burner when the temperature of the specific chamber is above 1400°F. It also allows bypass of the flame supervision system for a burner located in a chamber where the temperature is above 1400°F. A thermocouple located in the primary chamber provides temperature input to the purge bypass switch.

8.2.4.1.9.6 Control of all LIC equipment is provided through the local control system (LCS). All motors have a Hand-Off-Auto (HOA) or Local-Off-Remote (LOR) Hand Station (HS) and emergency stop (E-stop) pushbutton located near the motor. Each HS station is connected to a microprocessor-based motor controller that monitors motor current, controls starting and stopping of the motor it is connected to, and relays all hand station activity and motor status (including motor current) to the plant control system.

8.2.4.1.9.7 All safety-related Input/Output (I/O) connects directly to the BMS. The BMS has complete control over the flame safety systems of the LIC. Flame safety data is communicated from the BMS to the control room operator (CON-OP). Control commands from the CON-OP and stop-feed commands are communicated to the BMS.

A waste feed interlock is also hard-wired from the LCS directly to the BMS panel. An E-stop on the CON-OP console is hard-wired directly to the BMS.

8.2.4.2 **Incineration Upset Control**

8.2.4.2.1 At TOCDF, a ~~A~~ control system provides continuous automatic control of the incineration process. System interaction by the operator is limited to startup or shutdown of process systems or waste feed and reaction to abnormal conditions. In monitoring critical functions, the process control system gives advanced warning of alarms where possible, indicating that a critical or hazardous condition is developing and warning operators in time to take action. Interlocks are provided to respond to various conditions. Shutdown can be immediate or staged.

8.2.4.2.2.1.1 All incinerators have automatic waste feed cutoff systems as specified in Attachment 19 (Instrumentation and Waste Feed Cut-Off Tables).

~~8.2.4.3~~8.2.4.2.2.1.2 At the ATLIC, waste feed to the primary chamber may be stopped by the CON-OP as either a "normal" ramped secession of feed or an emergency shutdown of the LIC system by actuating the emergency stop (E-stop) button in the control room (CON E-stop). The CON E-stop shuts down the primary and secondary chamber burners, stops the combustion air blower, drives all valves to their safe position, stops primary waste feed, and stops SDS feed. The quench brine pump and ID fan remain running. An outside operator can initiate an emergency shutdown of the LIC system by actuating the E-stop on the BMS panel. The BMS E-stop shuts down the primary and secondary chamber burners, stops primary waste feed, stops SDS feed, and shuts down the fuel gas supply to the furnace.

8.2.4.3 **Emergency Power**

8.2.4.3.1 The emergency power systems are described in Attachment 9 (Contingency Plan).

8.2.5 **Personnel Protection Equipment [R315-3-2.5(b)(8)(v)]**

8.2.5.1 Various levels of protective clothing are required at the ~~facility~~ facilities to protect workers from the effects of the agent in the work environment. The type of protective clothing worn by the workers is based on the level of protection required by the location, the process, and the type of agent. Selection of proper PPE is addressed in Attachment 9 (Contingency Plan).

8.2.6 **Spent Decontamination Collection System [R315-3-2.5(b)(8)(iii)]**

8.2.6.1 At TOCDF, ~~In~~ all category A and B areas, as well as in some category C areas, spent decontamination sumps and pumps are designated and provided to collect any liquid from that area and pump it to one of the SDS storage tanks in the Toxic Cubicle (TOX).

8.2.6.2 All primary sumps are constructed of steel and surrounded by an epoxy coated external concrete liner. Secondary sumps are constructed of epoxy-coated concrete. The

compatibility of materials has been considered when designing these sumps. There are no incompatibility problems with the selected materials and anticipated decontamination solutions or other such wastes. Attachment 16 (Tank Systems) contains a detailed description of the TOCDF sump system.

8.2.6.3 At ATLIC, the SDS system starts at the collection points. There are sumps and pumps in the Entry Airlock "A", Entry Airlock "B", LIC Room, TOX Room, and a sump pan in each glovebox. Each areas floor is sloped, and SDS is collected in a below-grade sump. The sumps are constructed of concrete and have a steel pan placed within the concrete sump. The steel pan is lined with a protective liner compatible with the materials that are in the area. Leak detection is provided between the concrete sump and the steel pan. Information from the detector is sent to the control room to notify operators of any problems. If liquid is detected, the CON-OP will have the ability to activate and direct the sump content to the SDS collection tank. The collection points in the gloveboxes have collection pans; these pans are an integral part of the gloveboxes and are piped and drained to the SDS collection tank. In the case of the TOX sump, the contents can be directed to the SDS collection tank or to the Major Spill tank, both located in the TOX.

8.2.6.4 The Major Spill tank is provided as a storage point should a major spill occur. The tank is designed to handle a "worst case" spill of the largest tank within the TOX (1000 gallons). This tank allows spilled liquids to be removed from the room in an efficient manner decreasing the likelihood of saturating the filters under a Major Spill condition.

8.2.6.5 The SDS collection tank has a recirculation and sampling piping loop that allows for continuous recirculation of the contents within the tanks as well as providing for a sampling point to remove SDS sample for testing. The Major Spill tank can be sampled and directed via a manually installed hose to any of the storage systems within the TOX room utilizing that system's recirculation and sampling piping loop.

8.2.6.6 The area around the gloveboxes in the Processing Area is surrounded by a berm to provide containment if a leak occurs.

8.2.7 **Agent Monitoring Equipment [R315-3-2.5(b)(8)(vi)]**

8.2.7.1 Chemical agents are routinely managed at TOCDF and ATLIC. The safe operation of these facilities~~y~~ requires that personnel be protected from accidental or inadvertent exposure to these agents. The ventilation systems -minimizes worker exposure to agents. To supplement the ventilation system, an agent monitoring system is provided to alert facility personnel to the presence of agents.

8.2.7.2 The agent monitoring equipment at TOCDF includes the Automatic Continuous Air Monitoring System (ACAMS) and the Depot Area Air Monitoring System (DAAMS). In addition to ACAMS and DAAMS, monitoring equipment at the ATLIC includes MINICAMS. Attachment 22 (Agent Monitoring Plan) provides more information on each system, including a general description of the system, its theory of operation, and its sensitivity and response time.

8.2.7.3 In addition to the agent monitoring equipment, detector paper may be used as a confirmatory test for identifying G series, VX, and H series agents in suspect liquids.

This paper does not detect vapors or extremely small droplets of GB, VX, or mustard agents and may change color in the presence of other chemicals.[1]

8.3 PREVENTION OF IGNITION OR REACTION OF IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

8.3.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste [R315-3-2.5(b)(9) and R315-8-2.8(a)-(c)]

8.3.1.1 Ignitable waste at the facility includes waste generated at the Chemical Assessment Laboratory (CAL) and subsequently stored in the S-2 warehouse and Igloos 1632 and 1633. No sources of ignition will be allowed in the S-2 warehouse and Igloos 1632 and 1633 when ignitable items are stored. Potential sources of ignition to be prohibited include: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat producing chemical reactions), and radiant heat. "No Smoking" signs will be placed at the entrances to the S-2 warehouse and Igloos 1632 and 1633.

8.3.1.2 No treatment of wastes within the containers in the S-2 warehouse and Igloos 1632 and 1633 will occur (i.e., S-2 warehouse and the igloos will be used for storage only). This fact, coupled with the procedures identified in paragraph 8.3.4 regarding management of incompatible waste and the procedures identified above regarding the management of ignitable, will prevent the types of reactions described in R315-8-2.8(b).

8.3.1.3 Reactive wastes at the TOCDF facility include chemical agents by EPA characterization, explosives, propellants, and certain active ingredients in the fuzes. No precautions are taken by the facility to protect reactive wastes from contact with the water from the automatic sprinkler system. The explosives, propellants, and fuze components were originally produced in a water solution, are compatible with water, and dissolution in water reduces the reactivity hazard of these components, so no special precautions are necessary to prevent contact with water.

8.3.1.4 The demilitarization process and operations in the MDB are designed to prevent accidental ignition or reaction of agent, explosives, and propellants. The entire building is a designated non-smoking area. During munition processing, all equipment is grounded to prevent the transfer of electrostatic charges to the munitions.

8.3.1.5 Handling procedures have been incorporated into the transportation and plant operation procedures to apprise personnel of the importance of handling the munitions and bulk containers. Conveyors and charge cars are used to transport munitions and their components within the MDB. The conveyor incorporates stops, interlocks, and guard rails that prevent the munitions and components from falling.

8.3.1.6 *The facility is protected from fires and explosions potentially caused by functioning* munitions, electrical shorts, fuel leaks, overheated equipment, or miscellaneous equipment and operator failures by a fire protection system designed to meet the special

[1]Army Regulation 50-6, Nuclear and Chemical Weapons and Material, "Chemical Surety Program," Headquarters, Department of the Army, Washington, D.C., 15 January 1984.

the gases. The leak tight dampers will not be opened until the room gas pressure has decayed to approximately atmospheric pressure.

8.3.1.21 High gas pressure in the DFS kiln will be vented through an attenuation duct, then through the afterburner and ~~Pollution Abatement System (~~PAS~~)~~. The attenuation duct will reduce the gas pressures resulting from shocks so that an explosion will not violate the structural integrity of the afterburner or the PAS.

8.3.1.22 The ECRs were designed to have a leakage rate of no greater than 300 cubic feet per minute. The ECR is completely surrounded by rooms that are ventilated to the filter system. Therefore, any leakage out of the ECR as a result of a blast will be vented to the filter system.

8.3.1.23 Liquid agent in the ECR resulting from an explosion will be collected in the ECR sump. Because of the limited number of munitions that will be in the ECR at any one time, the amount of liquid agent released by an explosion is not expected to be greater than about two gallons. Once ventilation has been reestablished in the ECR (by reopening the gas tight valves), Demilitarization Protective Ensemble (DPE) entries will be made and the area will be hosed down with decontamination solutions. Sufficient decontamination solution will be used to ensure complete neutralization of the agent. The resulting waste liquids will then be pumped to the spent decontamination holding tank system for later incineration in one of the two LICs. The GB sodium hydroxide-based spent decontamination solution may be shipped off site if the requirements of Attachment 2 (Waste Analysis Plan) are met.

8.3.1.24 There is a remote possibility of a detonation in the DFS. This possibility is minimized by controlling the DFS retort temperature below a point where the explosive components would be expected to detonate. The possibility of a detonation is further reduced by spacing energetics on the feed conveyors and separating materials inside the retort by spiral flights, so that a detonation on one flight cannot propagate to other flights and cause a sympathetic detonation.

8.3.1.25 The possibility of a detonation is further minimized by shearing bursters into pieces, open at both ends, so that combustion initiates at both ends of a cylindrically shaped burster and there is no net force to cause acceleration of a work piece in any axial direction. Bursters from large projectiles (155-mm) are sheared into pieces to increase the surface area available for combustion and to reduce the size of the pieces so that combustion does not auto accelerate to a detonation (i.e., the fuel burns itself out before a supersonic pressure wave in the burning fuel can be established).

8.3.1.26 The energetic materials, because of their chemical composition, are expected to generate heat (2,000 to 4,000 Btu/lb) and evolve gases (CO, CO_2, H_2O, NO, NO_2, N_2) rapidly, a process generally described as deflagration. This rate is designed into the size of the retort, ductwork, and induced draft fan so that it can be controlled safely and effectively. This design concept has been proven effective in furnaces burning explosives and propellants from conventional munitions in several places across the country.

8.3.1.27 If a detonation should occur in the DFS, the operation of the afterburner will be protected by the Blast Attenuation Duct in the ductwork between the retort and the cyclone, and secondarily by the cyclone separator. Discharge of combustion gases from the heated discharge conveyor is prevented by two blast gates in series at the discharge end of the

on the side of the device (i.e., thermal initiation in a furnace), the explosives on the other side of the device will not be affected.

8.3.2 **General Precautions for Handling Ignitable or Reactive Wastes or Accidently Mixing Incompatible Wastes [R315-3-2.5(b)(9) and R315-8-2.8(b)**

8.3.2.1 General precautions for handling ignitable and reactive waste are discussed above. With the exception of the wastes stored in the S-2 warehouse and Igloos 1632 and 1633, none of the hazardous wastes are ignitable or potentially incompatible. Procedures which prevent mixing of incompatible wastes in the S-2 warehouse and Igloos 1632 and 1633 are provided in section 8.3.4.

8.3.2.2 During Lewisite operations at the ATLIC, the Nitric Acid Feed System (NFS) provides the facility with safe and efficient required storage and distribution of nitric acid. The acid storage enclosure houses the nitric acid supply barrels. The area will bermed and adequate ventilation will be provided for the enclosure.

8.3.3 **Management of Ignitable or Reactive Wastes in Containers [R315-3-2.6(c) and R315-8-9.7]**

8.3.3.1 The containers of agent, explosives, and propellants are not ignitable and are managed so that water contact is minimized. This same practice is adhered to if other wastes, such as the incinerator ash or residue, are found to be reactive because of the presence of sulfides or inorganic fluorides. All containers holding reactive or ignitable wastes will be located at least 50 feet from the facility property line.

8.3.4 **Management of Incompatible Wastes in Containers [R315-3-2.6(d) and R315-8-9.8(a)(2)]**

8.3.4.1 No incompatible hazardous waste at TOCDF shall be managed at the CHB. Munitions and bulk containers with only one agent type may be processed at one time.

8.3.4.1.1 GA and Lewisite will not be processed simultaneously by the ATLIC.

8.3.4.2 Containers with incompatible site-generated wastes shall not be placed on a secondary containment pallet in the S-2 warehouse at TOCDF or Igloos 1632 and 1633 at the same time. Therefore, incompatible wastes, or incompatible wastes and materials shall not be placed in the same container or on the same secondary containment pallet.

8.3.4.3 The acid storage enclosure at ATLIC will house the nitric acid supply barrels. The area will bermed and adequate ventilation will be provided for the enclosure.

8.3.5 **Management of Ignitable or Reactive Wastes in Tanks [R315-3-2.7 [40 CFR 270.16(f)] and R315-8-10 [264.198(a)(2)]]**

8.3.5.1 *Agent, brine, and spent decontamination solutions have flash points that classify them as* Class IIIB liquids in accordance with the National Fire Protection Association. These are not unstable, ignitable or reactive liquids, as defined by the National Fire Protection Association (NFPA). The storage tanks are in full compliance with the NFPA

requirements. The agent collection and spent decontamination tanks are located in the TOX and Spent Decontamination System Room, respectively. These areas are provided with trenches and sumps that provide containment in excess of the largest tank capacity. The spacing between tanks is in excess of three feet.

8.3.6 **Management of Incompatible Waste in Tanks [R315-3-2.7 [40 CFR 270.16(f)] and R315-8-10 [264.199(b)]]**

8.3.6.1 The design of ~~the~~ TOCDF allows for brines from the PAS to go to the brine surge tanks in the BRA, spent decontamination solutions and miscellaneous liquid wastes from the sumps to go to the spent decontamination tanks, and agent from the process machines and miscellaneous liquids to go to the agent collection tanks. All pollution abatement system brines from all of the furnaces, whether processing GB, VX, or mustard, are compatible. Different agents are not processed together in the ACS tanks and when changing from one agent to another, the agent collection tanks are thoroughly decontaminated to less than 20 ppb.

8.3.6.2 The Scrubber Liquor Blowdown at the ATLIC will be directed to three 90-day storage Receiving Tanks. These storage tanks are sized to allow sufficient storage for continuous processing operations. Spent decontamination solutions and miscellaneous liquid wastes from the sumps go to the spent decontamination tanks in the Toxic Area. Different agents are not processed together in the LCS tank. The GA agent will be drained and fed directly to the LIC. Agent from Lewisite tons will be drained and collected in the Lewisite -collection tank located in the Toxic Area.

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ACRONYMS

For purposes of this Contingency Plan. the following acronyms are used:

ACAMS	Automatic Continuous Air Monitoring System
ACS	Agent Collection System
AFSC	Army Field Support Command
AIC	Assistant Incident Commander
APR	Air Purifying Respirator
Area 10	Chemical Surety Materiel Storage Area
ATLIC	Area 10 Liquid Incinerator
BP	Battery Pack
BSRM	Burster Size Reduction Machine
BRA	Brine Reduction Area
CA	Combustion Air
CAIRA Plan	Chemical Accident/Incident Response and Assistance Plan
CAL	Chemical Assessment Laboratory
CAMDS	Chemical Agent Munitions Disposal System
CBR	Chemical, Biological, and Radiological
CCEE	Control Center Equipment Enclosure (ATLIC)
CFR	Code of Federal Regulations
CHB	Container Handling Building
CHE	Cholinesterase
CMA	Chemical Materials Agency
CMAT	Contractor Management Advisory Team
CMO	Command Module (CAMDS)
CON	Control Room (TOCDF)
CON-OP	Control Room Operator (for ATLIC)
CSEPP	Chemical Stockpile Emergency Preparedness Plan
DA	Department of the Army
DAAMS	Depot Area Air Monitoring System
DCD	Deseret Chemical Depot
Decon	Decontamination
DFS	Deactivation Furnace System
DOSC	Deputy On-Scene Coordinator
DPE	Demilitarization Protective Ensemble
DVS	Drum Ventilation System
DVSSR	Drum Ventilation System Sorting Room
ECF	Entry Control Facility
ECR	Explosive Containment Room
EMT	Emergency Medical Technician
EOC	Emergency Operations Center
EOD	Explosive Ordnance Disposal
EP	Emergency Power
ERO	Emergency Response Organization
ERP	Emergency Response Plan
GA	Tabun (Ethyl N, N-dimethylphosphoramidecyanidate)
GB	Sarin, Isopropyl methylphosphonofluoridate
GC	*Gas Chromatograph*
GEN	Emergency Generator Supply

GSR	Government Shift Representative
H	Levinstein mustard, bis (2-chloroethyl) sulfide
HAL	Halon
HD	Distilled mustard, bis (2-chloroethyl) sulfide
hr	Hour
HT	Mustard, 60% HD and 40% T

ACRONYMS

HTL	HAZMAT Team Leader
HVAC	Heating, Ventilation, and Air Conditioning
IC	Incident Commander
ICU	Intermittent Collection Unit
IDLH	Immediately Dangerous to Life and Health
IR	Infrared Retro-Reflective
IRF	Initial Response Force
lb/hr	pounds per hour
LIC	Liquid Incinerator
LPG	Liquefied Petroleum Gas
MCE	Maximum Credible Event
MCIC	Medical Clinician In Charge
MDB	Munitions Demilitarization Building
MDM	Multi-purpose Demilitarization Machine
MET/DET	Meteorological/Detection Teams
MOU	Memoranda of Understanding
MPF	Metal Parts Furnace
MSDS	Material Safety Data Sheets
NaOCl	Sodium Hypochlorite
NaOH	Sodium Hydroxide
NIOSH	National Institute for Occupational Safety and Health
OSC	On-Scene Coordinator
PAS	Pollution Abatement System
PDS	Personnel Decontamination Station
PMB	Personnel Maintenance Building
PMD	Projectile/Mortar Disassembly Machine
POC	Point of Contact
POV	Privately Owned Vehicles
PPE	Personal Protective Equipment
PPS	Primary Power Supply
PTL	Paramedic Team Leader
PUB	Process and Utility Building
~~QASAS~~	~~CMA Shift Quality Assurance Specialist and Ammunition Surveillance~~
QRU	Quick Response Unit
RTAP	Real Time Analysis Platform
RTL	Rescue Team Leader
SCBA	Self Contained Breathing Apparatus
SCO	Scene Control Officer
SDS	Spent Decontamination System
SPORT	Single Pallet Only Rocket Transporter
Spent Decon	Spent Decontamination Solution
SPS	Secondary Power Supply

9.0 CONTINGENCY PLAN [R315-3-2.5, R315-8-4]

9.0.1 This Contingency Plan provides for hazardous waste management and describes the actions facility personnel will take in response to fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents from their containment systems. This plan encompasses TOCDF and TOCDF operated facilities including the Chemical Agent Munitions Disposal System (CAMDS) and the Area 10 Liquid Incinerator (ATLIC).

9.1 EMERGENCY EQUIPMENT AND SYSTEMS

9.1.1 Electrical Distribution and Emergency Power (EP) System Overview

9.1.1.1 The TOCDF and ATLIC electrical system consists of primary and secondary systems. The primary system consists of substation, switchgears, and diesel engine generators. The secondary system consists of 480-V switchgears, Motor Control Centers, distribution transformers, panelboards, and Uninterruptible Power Supply (UPS) systems. The electrical loads are divided into three categories: critical, essential, and utility:

9.1.1.1.1 *Critical Loads* are those required immediately following a power interruption. These loads are fed from UPS and battery packs (BPs). Those requiring AC power are supplied from a solid-state UPS consisting of a battery/inverter system. Those requiring DC power are fed from a battery charger and storage battery or a special purpose pack furnished as an integral part of the load device.

9.1.1.1.2 *Essential Loads* are those that are essential for health and safety but can tolerate interruption for a few seconds or more. Essential loads may be supplied from a standby generator system that can be started and fully loaded within 90 seconds.

9.1.1.1.3 *Utility Loads* are those not falling into the first two categories. The loss of these loads may result in a shutdown of the facilities and loss of production, but will not endanger health or safety.

9.1.1.2 TOCDF Primary Power System (PPS)

9.1.1.2.1 Two 5-MVA transformers in the main substation, located near the TOCDF, receive primary power from the local electrical utility. This substation steps down line voltage from 46kV to 4.16kV and provides power to the TOCDF Primary Power System (PPS). Each transformer in the substation can carry 100% of the essential loads. Primary power to the ATLIC is provided by tying onto an existing 12,470 VAC overhead line from the Silverado substation that runs to TOCDF.

9.1.1.3 TOCDF Secondary Power System (SPS)

9.1.1.3.1 The Secondary Power System (SPS) consists of double-ended 480-V load center and switchgear, motor control centers, and other equipment necessary to control and distribute power to TOCDF equipment. The SPS drops the voltage received from the PPS from 4,160-V to 480-V through a series of transformers. These transformers supply power to the switchgear and load centers. The switchgear and load centers contain circuit

breakers that control power to the SPS motor control centers, transformers, and UPS systems.

9.1.1.3.2 The TOCDF line has been extended through an underground line into Area 10 to a new transformer pad at the ATLIC (approx. 1800 feet). A 2.0 MVA transformer provides 480 VAC 3Ø secondary power for the ATLIC.

9.1.1.4 TOCDF Uninterruptible Power Supply (UPS) System

9.1.1.4.1 The Uninterruptible Power Supply (UPS) at TOCDF provides power to electrical loads that cannot be interrupted for any length of time, such as instrument control systems, Control Room advisor screens, closed-circuit television, DPE radio system, warning lights (flashing), fire alarms, exit and emergency lights, and agent monitoring systems. The UPS system for the TOCDF MDB uses offset battery racks in a separate room to facilitate access for maintenance and to accommodate cable connections to each battery. Positive room air circulation is utilized to avoid hazardous concentrations of hydrogen gas. If the utility and emergency power systems are not available, the critical loads will be powered by two UPS batteries that provide power for no less than 45 minutes.

9.1.1.4.2 The UPS system at ATLIC also provides continuous power to critical equipment loads with battery supply at full load for a period of 45 minutes in the event of power system failure. The UPS system batteries are designed to carry these loads with no interruption for that 45 minute period or until the emergency generator system has started and automatically takes over the load. The UPS systems can be operated independently as either UPS is capable of carrying the entire UPS load should one UPS fail or require maintenance. Additionally, each UPS can be manually bypassed if either UPS should require a bypass at anytime for any reason. A listing of the major systems and major equipment that remains operational under emergency power at TOCDF and ATLIC is provided in Table 9-1-1.

Table 9-1-1
TOCDF EMERGENCY POWER LOAD SUMMARY

Power Load	Recommended Type of Supply	Load Classification
Agent annunciation system	BP[1]	Critical
Fire alarm	BP	Critical
DPE radio base station	BP[2]	Critical
ACAMS agent monitors	UPS	Critical
Emergency lighting in non-toxic areas	BP	Critical
Emergency lighting in toxic areas	BP[3]	Critical
Load center and electrical switchgear controls (SPS-LCTR-101 and -102)	UPS and/or Station Batteries	Critical
DAAMS Monitoring	EP	Essential
Rotary retort DFS drive	EP	Essential
DFS retort lube oil pump	EP	Essential
CCTV (selected areas)	UPS	Critical
Public address system	UPS or BP	Critical
Instrumentation (CON, PLCs, microprocessors)	UPS	Critical
Control room ventilation (air handling)	EP	Essential
UPS (power to)	EP	Essential

Table 9-1-1
TOCDF EMERGENCY POWER LOAD SUMMARY

Power Load	Recommended Type of Supply	Load Classification
Life support system and compressor	EP	Essential
CAL building, hood and filter units	EP	Essential
Air filtration system (includes air handling units)	EP	Essential
Instrument air compressor	EP	Essential
Area 10 Igloos 1631, 1632, and 1633 and the Igloo Carbon Adsorption Filtration System	EP	Essential
Battery room exhaust(HVC-FANX-102)	UPS	Critical
LPG transfer pump air compressor, vaporizer	EP	Essential
Facility heating	EP	Essential
Decon supply pump and spare	EP	Essential
Stack lighting	EP	Essential
MPF/ DFS/ECR feed and exit, conveyors/doors	EP	Essential
DFS secondary combustion air blowers	EP	Essential
MPF combustion air blower	EP	Essential
DFS/MPF emergency exhaust blowers	EP	Essential
DFS/MPF afterburners	EP	Essential
Quench brine pumps	EP	Essential
MPF/DFS Clean Liquor Pumps	EP	Essential
Control room air conditioning	EP	Essential
Process Water Supply	EP	Essential
Primary Cooling water	EP	Essential
Elevators/doors	EP	Essential

Notes:
1 BP = self-contained battery pack. EP = emergency power. UPS = solid-state uninterruptible power supply.
2 8-hour battery.
3 Battery packs are located in non-toxic areas.

ATLIC EMERGENCY POWER LOAD SUMMARY

Power Load	Recommended Type of Supply	Load Classification
FTB#1 MCC RM-8001	UPS	Critical
54-52-120 Switch Gear Breaker open/close	UPS	Critical
54-52-121 Switch Gear Breaker open/close	UPS	Critical
54-52-122 Switch Gear Breaker open/close	UPS	Critical
54-52-123 Switch Gear Breaker open/close	UPS	Critical
54-52-124 Switch Gear Breaker open/close	UPS	Critical
54-52-125 Switch Gear Breaker open/close	UPS	Critical
54-52-126 Switch Gear Breaker open/close	UPS	Critical
54-52-127 Switch Gear Breaker open/close	UPS	Critical
Fire Alarm System	UPS	Critical
Sound system (PA)	UPS	Critical
Radio Systems	UPS	Critical
Intrusion Detection System	UPS	Critical
Control room CCTV MON-8101, 8102 SWCH-8101, 8102	UPS	Critical

ATLIC EMERGENCY POWER LOAD SUMMARY		
Power Load	**Power Load**	**Power Load**
OPCW ROOM CCTV MON-8103,8104 SWCH-8103,8104	UPS	Critical
Seimens PLC # S-7-319	UPS	Critical
Server FCS-SRVR-211, 212	UPS	Critical
Control Consol #1	UPS	Critical
Control Consol #2	UPS	Critical
PLC Panel #1	UPS	Critical
PLC Panel #2	UPS	Critical
PLC Panel #3	UPS	Critical
PLC Panel #4	UPS	Critical
19 in. Rack CCTV/COMM	UPS	Critical
24 in Rack	UPS	Critical
Seimens Power Supply #1	UPS	Critical
Seimens Power Supply #2	UPS	Critical
MON-DAAMS 671	UPS	Critical
MON-DAAMS 672	UPS	Critical
Phone Board	UPS	Critical
Engineering Work Station	UPS	Critical
Agent Alarms	UPS	Critical
MON-DAAMS-672	UPS	Critical
OPCW QUAD Conv. Outlet	UPS	Critical
MON-ACAMS-521	UPS	Critical
MON-ACAMS-675	UPS	Critical
MON-MCAMS-124	UPS	Critical
MON-MCAMS-125	UPS	Critical
MON-DAAMS-676	UPS	Critical
MON-ACAMS-523	UPS	Critical
MON-DAAMS-677	UPS	Critical
MON-MCAMS-126	UPS	Critical
MON-MCAMS-127	UPS	Critical
MON-DAAMS-678	UPS	Critical
MON-ACAMS-529	UPS	Critical
MON-DAAMS-679	UPS	Critical
MON-MCAMS-130	UPS	Critical
MON-MCAMS-131	UPS	Critical
MON-DAAMS-680	UPS	Critical
MON-ACAMS-531	UPS	Critical
MON-MCAMS-132	UPS	Critical
MON-ACAMS-532	UPS	Critical
MON-MCAMS-133	UPS	Critical
AGB-GLBX-8502	UPS	Critical
AGB-GLBX-8501	UPS	Critical
FTB-MON#6 RM-113 FTB-8006	UPS	Critical
MON-ACAMS-519	UPS	Critical
MON-MCAMS-122	UPS	Critical
MON-ACAMS-520	UPS	Critical
MON-MCAMS-123	UPS	Critical

ATLIC EMERGENCY POWER LOAD SUMMARY		
Power Load	**Power Load**	**Power Load**
MON-ACAMS-521	UPS	Critical
MON-MCAMS-128	UPS	Critical
MON-ACAMS-525	UPS	Critical
MON-MCAMS-129	UPS	Critical
MON-ACAMS-527	UPS	Critical
MON-MCAMS-134	UPS	Critical
MON-ACAMS-533	UPS	Critical
MON-DAAMS-681	UPS	Critical
MON-ACAMS-535	UPS	Critical
MON-MCAMS-136	UPS	Critical
MON-MCAMS-135	UPS	Critical
MON-MCAMS-137	UPS	Critical
MON-DAAMS-682	UPS	Critical
MON-ACAMS-539	UPS	Critical
MON-ACAMS-537	UPS	Critical
MON-MCAMS-138	UPS	Critical
MON-DAAMS-683	UPS	Critical
MON-DAAMS-684	UPS	Critical
MON-MCAMS-139	UPS	Critical
835- PSU-8102	UPS	Critical
835- PSU-8101	UPS	Critical
FTB #3 MON RM 113 FTB-8003	UPS	Critical
FTB #4 MON RM 110 FTB-8004	UPS	Critical
FTB #5 Igloo RM 113 FTB-8005	UPS	Critical
PAS PANEL 1 (PA COMM)	UPS	Critical
MON-ACAMS-543	UPS	Critical
MON-DAAMS-687	UPS	Critical
MON-ACAMS-544	UPS	Critical
MON-DAAMS-688	UPS	Critical
MON-ACAMS-545	UPS	Critical
MON-MCAMS-142	UPS	Critical
MON-MCAMS-143	UPS	Critical
MON-MCAMS-144	UPS	Critical
MON-MCAMS-145	UPS	Critical
MON-MCAMS-146	UPS	Critical
MON-MCAMS-137	UPS	Critical
MON-DAAMS-685	UPS	Critical
MON-DAAMS-686	UPS	Critical
MON-DAAMS-689	UPS	Critical
MON-DAAMS-690	UPS	Critical
FTB #2 MON RM 113 FTB-8002	UPS	Critical
MON-ACAMS-549	UPS	Critical
MON-DAAMS-7415	UPS	Critical
MON-DAAMS-705	UPS	Critical
MON-MCAMS-148	UPS	Critical
MON-MCAMS-149	UPS	Critical
MON-ACAMS-551	UPS	Critical
MON-DAAMS-693	UPS	Critical
MON-DAAMS-7175	UPS	Critical

ATLIC EMERGENCY POWER LOAD SUMMARY		
Power Load	**Power Load**	**Power Load**
MON-DAAMS-707	UPS	Critical
MON-MCAMS-150	UPS	Critical
MON-MCAMS-151	UPS	Critical
MON-ACAMS-559	UPS	Critical
MON-DAAMS-713	UPS	Critical
MON-DAAMS-7195	UPS	Critical
MON-DAAMS-711	UPS	Critical
MON-MCAMS-152	UPS	Critical
MON-MCAMS-153	UPS	Critical
MON-ACAMS-553	UPS	Critical
MON-DAAMS-695	UPS	Critical
MON-ACAMS-554	UPS	Critical
MON-DAAMS-696	UPS	Critical
MON-MCAMS-154	UPS	Critical
MON-MCAMS-155	UPS	Critical
MON-MCAMS-156	UPS	Critical
MON-MCAMS-175	UPS	Critical
Air Handling Unit LIC	EP	Essential
Plant Air System Air Compressor (PLA-COMP-8354)	EP	Essential
LIC Combustion Air Blower	EP	Essential
PAS Venturi Brine Pump	EP	Essential
PAS Packed Bed Liquor Pump #1	EP	Essential
PAS Electric Reheater	EP	Essential
Filter Bank A	EP	Essential
Filter Bank C (Spare)	EP	Essential
Pump Chiller Unit, LIC (HVC-PUMP-8401)	EP	Essential
Pump Chiller Unit, Igloo (HVC-PUMP-8327)	EP	Essential
Air Handling Unit, Chiller, Igloo	EP	Essential
PAS Air Cooled Liquid Cooler Fan #3	EP	Essential
Process Water Supply Pump	EP	Essential
WTS Loading Pump	EP	Essential
480V Power Distribution Panel (SPS-PANL-8008)	EP	Essential
480V Power Distribution Transformer (SPS-TRSF-8006)	EP	Essential
Critical Power UPS 1/TRSF 8002	EP	Essential
GA/Lewisite Supply Pump #1	NE	Non-Essential
Nitric Reject Supply Pump #1	NE	Non-Essential
SDS Supply Pump #1	NE	Non-Essential
Chiller Air Cooled Condenser (PAS-COND-8975 A&B)	NE	Non-Essential
PAS Carbon Tansport Blower	NE	Non-Essential
PAS Liquid Chiller (PAS-CHL-8976 A&C)	NE	Non-Essential
Swamp Cooler Blower Fan	NE	Non-Essential
480V Power Distribution Panel (SPS-PANL-8004)	NE	Non-Essential
480V Power Distribution Transformer (SPS-TRSF-8002)	NE	Non-Essential
Air Handling Unit Igloo	EP	Essential
Plant Air System Air Compressor (PLA-COMP-8357)	EP	Essential
ID Fan (VFD)	EP	Essential
PAS Air Cooled Liquid Cooler (PAS-COOL-8972 A&B)	EP	Essential
Filter Bank B	EP	Essential
Emergency Quench Supply Pump	EP	Essential

ATLIC EMERGENCY POWER LOAD SUMMARY		
Power Load	**Power Load**	**Power Load**
Pump Chiller Unit, LIC (HVC-PUMP-8400)	EP	Essential
Pump Chiller Unit, Igloo (HVC-PUMP-8414)	EP	Essential
PAS Pump	EP	Essential
Air Handling Unit, Chiller LIC	EP	Essential
Process Water Supply Pump	EP	Essential
PAS Packed Bed Liquor Pump #2	EP	Essential
480V Power Distribution Panel SPS-PANL-8007	EP	Essential
480V Power Distribution Transformer SPS-TRSF-8005	EP	Essential
Critical Power UPS 2/TRSF 8001	EP	Essential
GA/Lewisite Supply Pump #2	NE	Non-Essential
Nitric Reject Supply Pump #2	NE	Non-Essential
SDS Supply Pump #2	NE	Non-Essential
PAS Liquid Chiller (PAS-CHL-8976 B)	NE	Non-Essential
Swamp Cooler Blower Fan	NE	Non-Essential
Chiller Air Cooled Condenser (PAS-COND-8975 C&D)	NE	Non-Essential
CDS Unloading pump	NE	Non-Essential
480V Power Distribution Panel SPS-PANL-8003	NE	Non-Essential
480V Power Distribution Transformer SPS-TRSF-8001	NE	Non-Essential

9.1.1.5 TOCDF Emergency Generator (GEN) System

9.1.1.5.1 The Emergency Generator (GEN) system at TOCDF consists of diesel-driven electrical generation systems capable of providing backup power to all of the critical and essential loads in case of a power outage. Diesel-driven auxiliary electrical generation systems are provided to supply essential power to the MDB and associated facilities for a safe and orderly shutdown. This includes power for emergency lighting, instrumentation and control system, building ventilation system, and key process equipment such as pumps and blowers where a power loss could either create a safety hazard or major damage to equipment. An additional diesel-driven filter generator is tied to all nine filter units in the MDB HVAC filtering system to provide power for any two of the filter units during an outage as needed. Plant security lighting is supplied from the Entry Control Facility generator.

9.1.1.5.2 Area 10 Igloos 1631 (Autoclave operations), 1632 (DVS/DVSSR operations & storage), 1633 (storage) and monitoring, including the Igloo Carbon Adsorption Filtration System, are provided emergency power by a dedicated natural gas-powered emergency generator. ACAMS monitoring at the carbon filtration system stack is initially powered by UPS.

9.1.1.5.3 The ATLIC Generator system consists of two diesel-powered generators and associated support equipment, including a fuel-oil day tank. The Generator equipment is located east of Igloo 1639 in the emergency generator building. The generators are used to energize the Essential and Critical loads only. The Primary Generator will supply these loads by opening and closing a combination of tie breakers, main non-essential breakers and utility source breakers to ensure there is never a chance of back feeding the utility line from a generator source. If one of the generators should fail to start or fail during operation, through the use of the PLC and monitored by the control room operators, a manual Tie breaker can be closed. At the same time SPS-MCC-8439 BKR #1 or BKR #2 can be locked in their open positions until the failed generator can be brought back on

line or normal utility power restored. Should either generator fail to start automatically after 4 attempts, the generators will require a manual start sequence. If both generators fail to start, the UPS maintains emergency lighting, control system operation, and communication while the plant is in a fail-safe condition.

9.1.1.6 The CAMDS electrical power system consists of primary and secondary systems. The primary system consists of substation, switchgears, and diesel engine generators. The secondary system consists of 480-V switchgears, Motor Control Centers, distribution transformers, panelboards, and Uninterruptible Power Supply (UPS) systems. The CAMDS emergency power system consists of diesel-engine-driven emergency standby generators. These systems are capable of carrying the entire CAMDS emergency load and providing backup power to all of the critical and essential loads in case of a power outage. Failure of commercial power is sensed by automatic transfer switches that start each generator and switch critical loads to standby power within ten seconds after a power failure. The CAMDS emergency power is provided to all critical functions, e.g., the control system, agent monitors, emergency lighting, ventilation filter units, communication systems, Closed Circuit Television (CCTV) systems, guardhouse, and perimeter lighting.

9.1.2 Fuel Gas System (Natural Gas)

9.1.2.1 The furnaces at TOCDF are designed to burn natural gas as their primary fuel source. The natural gas is fed to the facility from the local utility company main supply line at a nominal pressure of 70 psig. The TOCDF regulates this pressure down to a header pressure of 35 psig.

9.1.2.2 The TOCDF fuel gas system consists of commercially supplied natural gas, associated controls, indicators, and flare stack and fuel gas distribution system. A seismic-activated gas cutoff valve is provided to shut the gas supply to the equipment in the event of an earthquake.

9.1.2.3 The DCD Area 10 Igloo natural gas-powered emergency generator is supplied by the DCD natural gas supply system.

9.1.2.4 The CAMDS fuel gas system consists of commercially supplied natural gas, associated controls, indicators and distribution system. The use of fuel gas at the CAMDS site is limited to various building heating systems.

9.1.2.5 At ATLIC, natural gas is supplied to the primary and secondary chamber burners as fuel. The fuel is supplied through the fuel supply skid located outside the building. A pressure regulator reduces the fuel supply pressure to the burners. The fuel flow rate is measured by an orifice plate and regulated by a flow-control valve and controller.

9.1.3 Fuel Oil System

9.1.3.1 The Fuel oil storage at TOCDF is provided to supply fuel to the emergency diesel-driven electrical generation system. The fuel oil system consists of a belowground storage tank with level sensor, switch panel, drop tube, and 30-inch manway. The tank is double walled with a rustproof fiberglass reservoir. A monitoring system provides for leak detection.

9.1.3.2 The CAMDS emergency power system fuel oil supply is provided by fuel oil tanks located adjacent to each emergency diesel generator. The fuel oil tanks are subject to 4-hour periodic fire-watch inspections.

9.1.3.3 The ATLIC has a fuel-oil day tank. In the event of a projected utility loss, provisions will be made to provide fuel delivery as required or incorporate the addition of a larger fuel tank into the system design. An alternative to this course of action will be to perform a programmed shut down of the Primary Generator and bring the Secondary Generator on line. This action would allow for additional operation before refueling would be required.

9.1.4 Fire Detection and Protection Overview

9.1.4.1 TOCDF is equipped with smoke and fire alarm sensors, control panels, and alarms to alert personnel that a fire has been detected. Manual pull stations are located at exit points throughout the site to allow personnel to report visual sighting of a fire. Pull stations, alarms, and hydrants are located throughout the site near the fuel storage area for the emergency generator, the LPG tank, the PMB filters, the fuel and bulk chemical unloading area, the MDB filter and stack area, the CON filter, the CHB loading dock, and the backup generator area. To extinguish fires, sprinkler systems using water are used in the UPA, ECR, and CHB; Halon 1301 total-flooding systems are used in the CON and UPS rooms, FM-200/FE-227 total-flooding suppression systems are used in the UPS and Battery Enclosures; and dry chemical systems are used in the TOX; and the induced-draft fan oil-lube systems located east of the PAS building. Wet-pipe sprinkler systems are used in the PMB. Smoke detectors are used in the PSB, certain areas of the PMB, and the Treaty Compliance Building (TCB). Portable fire extinguishers are provided for rapid response to small fires. In addition, a looped water distribution system services the site's fire hydrants.

9.1.4.2 TOCDF Detection and Alarm

9.1.4.2.1 Fire detectors used in the various fire detection systems are one of the following types: photoelectric, combination Ultraviolet/Infrared (UV/IR), and thermal. Detectors in the furnace rooms and in areas subject to decon solution spray are high-temperature, rate-of-rise, and thermal types. Combination UV/IR detectors are provided for the ID fan oil-lube systems. All other areas are provided with photoelectric detectors.

9.1.4.2.2 If smoke or heat is sensed, an alarm is generated at the local panel and a signal goes to the main supervisory control panel in the CON. That panel passes the alarm to the ECF control panel. The ECF control panel reports the alarm to the DCD fire department through the radio communication system.

9.1.4.2.3 Rooms with Halon 1301 and FM-200/FE227 protection use cross-zoned anti-falsing photoelectric smoke/heat detectors. Rooms with dry-chemical extinguishing system protection use cross-zoned protection with thermal and photoelectric detectors in the TOX. When these detectors sense smoke or heat, they simultaneously activate an alarm throughout the MDB using local alarm horns and strobe lights and visual and audio alarms in the CON.

9.1.4.6.1 Portable fire extinguishers are wall mounted throughout the TOCDF (except for A and B air categories in the MDB) and TOCDF-operated igloos, and are used in the event of a small fire that has been determined to be one that can be handled safely and kept under control. Two types of portable fire extinguishers are available depending on the type of fire expected in the immediate area: Halon 1211 and multipurpose dry chemical. Both types are compatible with chemical agent and decontamination fluids. All personnel are authorized to use portable fire extinguishers to extinguish small fires and are familiar with extinguisher locations.

9.1.4.6.2 Halon 1211 fire extinguishers are rated 2A:60B:C and placed in areas where electrical fires or electrical hazards are expected. The contents of these extinguishers are stored as a liquid under pressure and expelled as a liquid.

9.1.4.6.3 In areas where electrical fires or electrical hazards are not expected, multipurpose dry-chemical fire extinguishers are sufficient. Multipurpose dry-chemical extinguishers for Class A, B, and C, and rated 20A:120B:C are mounted in such areas.

9.1.4.7 TOCDF Dry-Chemical System

9.1.4.7.1 Five dry-chemical type fire suppression systems protect specific process zones. Four systems are located on the east side of the PAS platform east of the PAS building and provide protection to the four lube-oil systems of the four PAS induced-draft fans. A fifth system provides protection to the upper and lower levels of the TOX.

9.1.4.8 CAMDS Fire Detection and Protection consists of hand-held portable fire extinguishers, fire hydrants, and four dry-chemical type fire suppression systems that protect the CMO, the SAF Lab, the SAF chemical storage room, and the CUB. The portable hand-held extinguishers are distributed throughout the buildings that remain standing (e.g., have not been decommissioned, demolished and closed yet). All personnel are authorized to use portable fire extinguishers to extinguish small fires and are familiar with extinguisher locations. Additional fire detection is provided by 4-hour periodic fire watch inspections.

9.1.4.9 The ATLIC Fire Detection and Protection consists of a Fire Alarm Control Panel (FACP) located in the Area 10 Control Point facility ATLIC CCEE. The FACP reports to the TOCDF CON and the DCD Fire Department. The fire detection, internal alarm and central reporting systems are configured in accordance with NFPA. Drawing EG-22-K-8201, Sheet 1, provides a complete description and list of ancillary.

9.1.4.10 An addressable Fire Detection Annunciation and Alarm system incorporates photoelectric smoke detectors as well as Combination fixed-temperature and rate-of-rise thermal detectors. This system is capable of being activated by local fire detectors or manual pull stations.

9.1.4.11 This system interfaces with the Main Supervisory Fire Alarm Panel (MSFAP) and forwards this information to the TOCDF Control Room (CON) Fire Alarm Panel.

9.1.4.12 Fire dampers are not allowed in a hazardous exhaust duct. Duct detectors have been incorporated in the two monitoring rooms located inside the Environmental Control System (ECS) to ensure adequate detection and control.

9.1.4.13Portable fire extinguishers are placed throughout the facility in compliance with NFPA 10.

9.1.4.14Most areas contain a temperature sensor only while other areas will contain combination photo and heat detectors. Each zone or area is adequately covered by a combination Horn/Strobe alarm light designed with the ambient noise threshold in mind. A strobe sync module is installed within the FACP.

9.1.4.15The Igloo, ECS, monitoring enclosures, and the electrical room are protected with a pre-action wet sprinkler system. In addition, an FM200 system protects the Program Logic Controller (PLC) area inside the Control Center Equipment Enclosure (CCEE).

9.2 EMERGENCY RESPONSE ORGANIZATION [R315-8-4.3(c), R315-8-4.6; 29 CFR 1910.120]

9.2.1 Overview

9.2.1.1 TOCDF and TOCDF-operated facility response efforts are commanded and controlled by the Incident Commander (IC)[2]. The IC is an employee of EG&G, the operator of TOCDF and TOCDF-operated facilities. Oversight of emergency response efforts is provided by the TOCDF General Manager, also an EG&G employee. For the purposes of emergency response, "EG&G" includes all EG&G subcontractors such as Battelle. In an emergency that is declared a Chemical Accident/Incident Response and Assistance (CAIRA) event, response command and control is ceded to the DCD Commander operating from the installation Emergency Operations Center (EOC). During CAIRA events, the On-Scene Coordinator (OSC) has been designated by the DCD Commander to direct emergency operations. In a CAIRA event, the EG&G IC will fulfill this function under the direction of the OSC.

9.2.1.2 EG&G's Emergency Response Organization (ERO) is composed of three distinct but coordinated groups of emergency personnel: Scene Responders, the Control Room, and the Contractor Management Advisory Team (CMAT). Each group has its own response role and focus, each complementing the other. Group composition and relationships are illustrated in Figure 9-1-1. The basic responsibilities of each of these three groups are discussed below.

9.2.1.3 The DCD Emergency Response Organization for a chemical event is shown in Figure 9-1-2. During chemical events, TOCDF emergency response efforts are under the direction of the DCD Commander at the DCD EOC. Direct interface is provided through the DCD OSC at the EOC.

9.2.1.4 CAMDS Emergency Notification – As described in 9.2.5, The prescribed communication path for reporting CAMDS emergencies to the TOCDF Control Room is via the CAMDS CMO. CAMDS personnel have been trained to report all incidents directly to the CAMDS CMO, who then is responsible for notifying the TOCDF Control Room in order to activate the ERO.

[2] To be consistent with the EG&G Emergency Response Plan, the title of Incident Commander (IC) is used instead of Emergency Coordinator.

9.2.1.5 ATLIC Emergency Notification - As described in, 9.2.6, the prescribed communication path for reporting ATLIC emergencies to the TOCDF Control Room is via the ATLIC CON-OP. ATLIC personnel have been trained to report all incidents directly to the ATLIC CON-OP, who then is responsible for notifying the TOCDF Control Room in order to activate the ERO.

9.2.2 Scene Responders

9.2.2.1 The Scene Responders are comprised of EG&G and EG&G-contracted (e.g., Battelle) employees with the expertise to quickly respond to the scene of an event, assess the situation, and promptly implement corrective and protective measures. This group is modular in composition; therefore, responders can be mobilized based on need. The organizational structure of Scene Responders is patterned after the unified command and control concepts of the Incident Command System as specified in OSHA Regulation 29 CFR 1910.120. Scene Responders are led by the IC who directs and controls emergency response activities at TOCDF and TOCDF-operated facilities, including CAMDS and ATLIC. Response teams are activated by the IC, and the IC will establish the response objectives. In a chemical agent event, the DCD OSC will establish response objectives and inform the IC. The responsibilities of each scene response leader and advisor are as follows:

9.2.2.2 Incident Commander (IC)/Emergency Coordinator

9.2.2.2.1 The Incident Commander (IC)/Emergency Coordinator during an emergency at TOCDF and all TOCDF-operated facilities (including CAMDS) is the TOCDF Plant Shift Manager. The alternate designee IC is the TOCDF Operations Shift Supervisor or personnel certified as either the TOCDF Plant Shift Manager or the TOCDF Operations Shift Supervisor. The IC is responsible for directing EG&G emergency response operations. The IC will receive notification of an event in the Control Room. The IC will determine whether the event is an incidental event or an emergency. If the event is an emergency, the IC will decide personnel protective actions and determine which elements of the Emergency Response Organization (ERO) to activate. The IC will then turn over operation of the plant to the Operations Shift Supervisor and assume the role of IC for the duration of the emergency.

9.2.2.2.2 The IC will:

9.2.2.2.2.1 Ensure prompt notification of an emergency to pre-specified organizations.

9.2.2.2.2.2 Ensure effective mobilization of EG&G, EG&G-contractors, and outside responders and resources.

9.2.2.2.2.3 Ensure the safety of site personnel and responders.

9.2.2.2.2.4 Ensure personnel and responder accountability is maintained.

9.2.2.2.2.5 Establish response strategies, objectives, and priorities.

9.2.2.2.2.6 If appropriate, evacuate the facility (see Section 9.10.3.4).

9.2.2.2.2.7 Make the necessary notifications (see Section 9.7.1).

9.2.2.2.2.8 Mobilize personnel and ensures the proper PPE is provided.

9.2.2.2.2.9 Stop flow into the tank system and inspect to determine the cause of the release (see R315-8-10 [40 CFR 264.196(a)], Sections 9.4.9 through 9.4.11, and Attachment 16 (Tank Systems) of this Permit regarding spills and leakage from TOCDF and ATLIC-permitted tanks, containers, and other regulated units (or Attachment 13 (Tank Systems) of the CAMDS Permit (incorporated into this Permit as Attachment 28) regarding spills and leakage from CAMDS-permitted tanks and containers).

9.2.2.2.2.9.1 Shut off pumps and closes inlet valves as appropriate.

9.2.2.2.2.9.2 If a valve, pipe, hose, or pump is leaking or spilling, isolate this equipment by closing the appropriate valves.

9.2.2.2.2.10 Removes sufficient waste from the tank system within 24 hours after detection of leak to reach a level where further release is prevented and tank inspection and repair can be performed (see R315-8-10 [40 CFR 264.196(b)], Sections 9.4.9 through 9.4.11, and Attachment 16 (Tanks Systems) of this Permit (Attachment 13 (Tank Systems) of the CAMDS Permit(incorporated into this Permit as Attachment 28) regarding spills and leakage from tanks, containers, and other regulated units).

9.2.2.2.2.10.1 Transfers the contents to other tank(s), container(s), or an appropriate treatment process.

9.2.2.2.2.10.2 As appropriate, removes the tank or component in question from service until permanent repairs can be made.

9.2.2.2.2.11 Conducts a visual inspection of the release and prevents further migration and removes and properly disposes of any visible contamination (see R315-8-10 [40 CFR 264.196(c)], Sections 9.4.9 through 9.4.11, and Attachment 16 (Tank Systems) of this Permit (Attachment 13 (Tank Systems) of the CAMDS ~~Permit(~~Permit (incorporated into this Permit as Attachment 28) regarding spills and leakage from tanks, containers, and other regulated units).

9.2.2.2.2.11.1 Assemble the appropriate response equipment (i.e., absorbent material, empty drums, overpacks, shovels, brooms, pumps, vacuum trucks, etc.)

9.2.2.2.2.11.2 Determine the most appropriate containment and clean-up methods; implements appropriate containment procedures (i.e., earthen dikes, etc.).

9.2.2.2.2.11.3 Initiate clean-up and, directly or through communication with spill response personnel, monitors the clean-up of the released material. Clean-up will be performed as soon as possible, following detection of the release, to minimize any associated affects on human health or the environment. Releases to secondary containment systems will be cleaned-up within 24 hours of detection. The released material will be transferred (e.g., via shovel, pump, vacuum truck, absorbent, earth moving equipment, etc.) to a container(s) or other tank(s) in good condition or to an appropriate treatment process.

9.2.2.2.2.11.4 If the origin (and therefore the identity) of the released material is unknown, ensure that a sample of the released material and/or the clean-up residues/solutions are obtained and arranges laboratory analysis.

9.2.2.2.2.11.5 Ensure that the released material, that is treated or has been placed into a container(s) or tank(s) is managed in accordance with this Permit (e.g., stored in permitted container storage area(s), stored in permitted tank(s). shipped offsite, thermally treated, etc.).

9.2.2.2.2.11.6 Ensure that, after clean-up is complete, the secondary containment system and all equipment and PPE used during clean-up is decontaminated as necessary and PPE and absorbent materials are restocked as appropriate.

9.2.2.2.2.12 Develop and submit the appropriate reports required by R315-8-10 [40 CFR 264.196(d)] and Section 9.8 of this Contingency Plan.

9.2.2.2.2.13 Ensure, tank systems are repaired or closed as appropriate (see R315-8-10 [40 CFR 264.196(e)]). The repair methodology specified in the appropriate tank system design/fabrication standards (i.e., ASME Section VIII Division I, API 650, etc.) will be followed. Attachment 10 (Closure Plan) of this Permit contains details regarding tank system closure. See Sections 9.4.9 through 9.4.11, and Attachment 16 (Tank Systems) of this Permit (Attachment 13 (Tank Systems) of the CAMDS Permit (incorporated into this Permit as Attachment 28) regarding spills and leakage from tanks, containers, and other regulated units.

9.2.2.2.2.13.1 If the tank system is repaired and the repair was extensive, obtain and submit a certification by an independent, qualified registered professional engineer that the repaired system is capable of handling hazardous waste for the intended life of the system (see R315-8-10 [40 CFR 264.196(e)]).

9.2.2.2.3 With advice and input from ERO members, the IC will:

9.2.2.2.3.1 Assess the emergency and its consequences.

9.2.2.2.3.2 Establish a hazard zone and protective actions.

9.2.2.2.3.3 Develop a corrective action plan.

9.2.2.2.4 The IC will integrate non-EG&G responders such as firefighting and security services and ensure that all parties are fully informed of events and actions occurring at the scene. Upon termination of an emergency, the IC will make reentry and recovery recommendations and assist with recovery operations.

9.2.2.2.5 The IC has the authority to commit all EG&G resources necessary to adequately implement any response actions.

9.2.2.2.6 Table 9-2-1 identifies the ICs and Table 9-2-2 identifies the AICs for TOCDF and TOCDF-operated facilities, including CAMDS and ATLIC.

9.2.2.10 Medical Clinician In Charge (MCIC)

9.2.2.10.1 The Medical Clinician In Charge (MCIC) has overall responsibility for emergency medical response. The MCIC is the most highly-trained medical person at the TOCDF Medical Clinic at the time of an emergency. TOCDF is the primary medical care facility for ~~potential~~ agent related events at DCD~~exposure for TOCDF and the TOCDF operated facilities, including CAMDS~~. The MCIC is responsible for dispatching medical transport vehicles and paramedics to the scene; authorizing administration of additional nerve agent antidote injections as required (may also be authorized by paramedics); providing casualty triage and treatment instructions to paramedics on the scene; assuring the Clinic is staffed and prepared to receive casualties; ensuring casualties have been adequately decontaminated prior to treatment in the Clinic; managing personnel decontamination at the Clinic; performing and directing emergency triage and treatment of casualties arriving at the Clinic; requesting outside medical support directly from the DCD EOC via the TOCDF Control Room and keeping the DCD EOC updated on casualty status and medical response; directing activities of all outside medical teams at the Clinic; and recording and tracking treatment provided to casualties at the scene, at the Clinic, and in support facilities.

9.2.2.11 Rescue Team Leader (RTL)

9.2.2.11.1 The Rescue Team Leader is responsible for directing activities of the Rescue Team in performing confined space/technical rescue. The RTL and Rescue Team personnel are also members of the HAZMAT Team. If the event involves HAZMAT response and either confined space or technical rescue, the RTL will defer to the HAZMAT Team Leader for matters involving HAZMAT operations (PPE, contamination control, personnel decontamination, etc.). The RTL will obtain mission objectives from the SCO; assess the risks; develop a rescue plan; prescribe safety measures to be taken; verify that no explosive atmosphere exits prior to any confined space entry; ensure proper PPE and rigging systems for the rescue; brief rescue and backup teams on the mission; perform rescue readiness checks; dispatch the rescue teams; provide constant surveillance and guidance during the extraction; maintain accountability of rescue personnel; and obtain any needed support for rescue teams. The RTL will take direction from and report to the SCO.

9.2.2.12 CMA Shift Engineer

9.2.2.12.1 The CMA Shift Engineer will provide technical advice and guidance to the IC and Control Room personnel, and perform CMA notifications. During an off-hours emergency involving Contractor Management Advisory Team (CMAT) mobilization, the CMA Shift Engineer will dispatch the CMA Shift Quality Assurance Specialist and Ammunition Surveillance to the DCD EOC to act as a EG&G liaison and technical advisor pending CMAT arrival.

9.2.3 Control Room

9.2.3.1 The Control Room for TOCDF plant operations is located in the MDB. The Control Room is designed with engineering controls to isolate it from the effects of potential hazards. It contains centralized monitoring capability and emergency communications

systems including the 911 emergency reporting line, the site-wide public address system for broadcast of emergency notification and instructions, and base radio stations for emergency communications. It also provides centralized control and monitoring of critical plant systems and equipment. The Control Room is staffed on a 24-hour basis. The Control Room, comprised of shift Control Room Operators, is directed by the Plant Shift Manager during normal shift operations. The Plant Shift Manager will delegate direction of the Control Room to the Control Room Supervisor in an emergency event. The Control Room Supervisor will then be the Control Room group leader and be responsible for all TOCDF and TOCDF-operated facility (including CAMDS and ATLIC) emergency notification; protective action instructions; activation of the Emergency Response Organization; emergency communications; and monitoring and controlling plant processes, systems, and equipment to ensure personnel safety and to mitigate damage to facilities and equipment. The role of the CAMDS CMO and the ATLIC CON-OP during the incident is primarily notification of the ~~CAMDS~~ incident to the TOCDF Control Room.

9.2.3.2 Assistant Incident Commander (AIC)/Alternate Emergency Coordinator[3]

9.2.3.2.1 The Operations Shift Supervisor is the Assistant IC (AIC). The Operations Shift Supervisor may be designated the IC in any event by the Plant Shift Manager or will automatically assume the role of IC in the Plant Shift Manager's absence. If the Operations Shift Supervisor is designated the IC, he will then assume command of all EG&G emergency response operations and report to the EOC for the duration of the emergency. If the Operations Shift Supervisor assumes the role of IC, he will assign a certified Operator to assume the Operations Shift Supervisor's duties.

9.2.3.2.2 The Operations Shift Supervisor is responsible for monitoring emergency alarms and communication devices; providing initial emergency instructions and guidance to first responders at the scene; rapidly notifying required emergency services such as firefighting, medical, and security; alerting and notifying affected personnel of the emergency and protective actions; deploying responders to the scene and emergency facilities such as the Clinic and DCD EOC; promptly notifying DCD and EG&G management; establishing a Control Room communications and information center for EG&G emergency response; initiating rapid entry and exit procedures for areas under surety controls; tracking accountability of site personnel and responders; acquiring resources to support scene operations; and documenting and tracking emergency events and actions. The above Operations Shift Supervisor responsibilities are carried out by the Control Room Operators, who are pre-assigned to certain emergency tasks at the start of their shift in order to maximize response effectiveness.

9.2.3.2.3 In addition, the Operations Shift Supervisor will assess any malfunction or damage to plant systems, equipment, or facilities; initiate remedial actions such as shutdown, reroute, or repair; identify hazardous locations; anticipate emergency impact on associated systems or equipment; take action to mitigate damage; and provide technical advice and cautions for response teams working on plant systems.

[3] To be consistent with the TOCDF/EG&G Emergency Response Plan, the title of Alternate Incident Commander (AIC) is used instead of Alternate Emergency Coordinator.

other location, e.g., plant systems specialists or special working groups may be needed to analyze specific problems and recommend solutions. The activation of additional EG&G personnel in support of the CMAT is at the discretion of the General Manager.

9.2.4.10 During an emergency, the CMAT will continue to administer normal work functions not impacted by the emergency.

9.2.5 CAMDS-Specific Emergency Notification

9.2.5.1 Initial reports of CAMDS emergency events will be from the discovering CAMDS personnel to the CMO, who will then notify the TOCDF Control Room for ERO activation. CAMDS emergency communications are performed by standard telephone, cellular phone, radio, and face-to-face contact. Upon discovery of an emergency event at CAMDS, site personnel are instructed to call 4400 from a site phone that will connect them to the CAMDS CMO.,

9.2.5.2 The CAMDS Plant Shift Manager will receive event notification from the CMO. He will determine whether the event is an incidental event or an emergency. If the event is an emergency, he will decide immediate personnel protective actions for CAMDS site personnel, and then notify the TOCDF Control Room of the situation. The CAMDS Plant Shift Manager will request resources from the TOCDF Control Room to support emergency response actions at the CAMDS facility. The CAMDS Plant Shift Manager will then delegate operation of the CAMDS site to the CMO Operator for the duration of the emergency and assume responsibilities as assigned by the IC (e.g., advisor to the SCO).

9.2.5.3 Upon a declared emergency at CAMDS, the CAMDS Plant Shift Manager will select a POC from the CAMDS staff to meet the EG&G Emergency Response Organization at the CAMDS Command Post to ensure a safe entry route and advise a set-up location.

9.2.5.4 The CAMDS Plant Shift Manager will ensure prompt notification of an emergency to pre-specified organizations; ensure effective mobilization of EG&G and outside responders and resources; ensure the safety of site personnel and responders; ensure personnel and responder accountability is maintained; and aid the SCO in establishing response strategies, objectives, and priorities. Upon termination of an emergency, the CAMDS Plant Shift Manager will make re-entry and recovery recommendations to the IC and assist with recovery operations.

9.2.5.5 In the event of an emergency, CAMDS will receive support from EG&G Emergency Response Teams. CAMDS site employees are trained to OSHA 'awareness level' to recognize and report emergency conditions. Additionally all CAMDS site personnel are trained in CPR and use of an AED.

9.2.6 ATLIC-Specific Emergency Notification

9.2.6.1 Initial reports of ATLIC emergency events will be from the discovering ATLIC personnel to the CON-OP, who will then notify the TOCDF Control Room for ERO activation. ATLIC emergency communications are performed by standard telephone, cellular phone, radio, and face-to-face contact. Upon discovery of an emergency event at ATLIC, site personnel are instructed to call the ATLIC CON-OP from a site phone.

9.2.6.2 The ATLIC Shift Supervisor will receive event notification from the CON-OP. He will determine whether the event is an incidental event or an emergency. If the event is an emergency, he will decide immediate personnel protective actions for ATLIC site personnel, and then notify the TOCDF Control Room of the situation. The ATLIC Shift Supervisor will request resources from the TOCDF Control Room to support emergency response actions at the ATLIC.

9.2.6.3 Upon a declared emergency at ATLIC, the ATLIC Shift Supervisor will select a POC from the ATLIC staff to meet the EG&G Emergency Response Organization at the ATLIC Designated Entry Point to ensure a safe entry route and advise a set-up location.

9.2.6.4 The ATLIC Shift Supervisor will ensure prompt notification of an emergency to pre-specified organizations; ensure effective mobilization of EG&G and outside responders and resources; ensure the safety of site personnel and responders; ensure personnel and responder accountability is maintained; and aid the SCO in establishing response strategies, objectives, and priorities. Upon termination of an emergency, the ATLIC Shift Supervisor will make re-entry and recovery recommendations to the IC and assist with recovery operations.

9.2.6.5 In the event of an emergency, ATLIC will receive support from EG&G Emergency Response Teams. ATLIC site employees are trained to OSHA "awareness level" to recognize and report emergency conditions. Additionally all ATLIC site personnel are trained in CPR and use of an AED

9.3 IMPLEMENTATION |R315-8-4.2(b)|

9.3.1 The purpose of this section is to establish guidelines for the orderly reporting and handling of emergency situations, which occur or could foreseeably develop at the TOCDF site or TOCDF-operated facilities. Due to the nature of materials handled at TOCDF and TOCDF-operated facilities, this plan may be implemented as a precautionary measure during routine operations. This Contingency Plan is implemented immediately in the event that a fire, explosion, or agent or non-agent release occurs which could threaten human health or the environment.

9.3.2 Fire or Explosion Incident

9.3.2.1 For the purpose of this section, fire means a fire in a chemical agent, oil, or hazardous material/waste storage, transportation, treatment, or work area. Explosion means an explosion in a chemical agent, oil, or hazardous material/waste storage, transportation, treatment, or work area.

9.3.2.2 The Contingency Plan is implemented due to fire or explosion if:

9.3.2.2.1 The event causes the release of toxic fumes.

9.3.2.2.2 The fire spreads and could possibly ignite materials at other locations on site, or could cause heat-induced leaks or explosions.

9.3.2.2.3 The fire could possibly spread to offsite locations.

9.3.2.2.4 The use of fire suppressant, either chemicals or water, could result in contaminated runoff.

9.3.2.2.5 The explosion has or could:

9.3.2.2.5.1 Result in danger from flying fragments or shock waves,

9.3.2.2.5.2 Ignite other materials at the facility,

9.3.2.2.5.3 Release toxic materials.

9.3.2.2.6 The fire or explosion endangers human health or the environment for any other reason.

9.3.2.3 In the event that a fire and/or explosion has occurred, follow Section 9.4.1.

9.3.3 Agent or Non-Agent Release

9.3.3.1 For the purpose of this plan, agent release means the release of chemical agent to the environment outside of closed systems, facilities, or devices (e.g., lab hoods, glove-box, munitions and bulk containers) exceeding or predicted to exceed the agent exposure limits listed in Table 9-3-1. This includes release of any nature resulting in personnel exhibiting clinical signs or symptoms of agent exposure. Any potential release exceeding the agent exposure limits from a stack, which cannot be confirmed or non-confirmed within 24 hours, is also agent release. Non-agent release means release of oil, hazardous material/waste or hazardous waste constituents. Release means any unplanned sudden or non-sudden release to air, soil, or surface water at the facility.

Table 9-3-1
AGENT EXPOSURE LIMITS AND AGENT STACK LIMITS (mg/m^3)

	GA	GB	Lewisite	VX	H/HD/HT
12 hour WPL[1]	0.00002	0.00002	0.003	0.0000006	0.00027
24-hr GPL[2]	0.000001	0.000001	0.003	0.0000006	12 hour GPL 0.00002
SEL[3]	0.0003	0.0003	0.003	0.0003	0.03
STEL (fifteen minute TWA)	0.0001	0.0001	0.003	0.00001	0.003
VSL (single-cycle)	0.0001	0.0001	0.003	0.00001	0.003

[1] Unmasked agent worker 12-hour Worker Population Limit.

[2] Non-agent worker/General Population (GPL) 72-hour time weighted average.

[3] Source Emission Limit.

9.3.3.2 The Contingency Plan is implemented due to a spill or material release if:

9.3.3.2.1 The spill could release toxic or flammable liquids or vapors outside of engineering controls or could cause a fire or gas explosion hazard.

9.3.3.2.2 The spill could result in offsite or onsite soil, groundwater, or surface water contamination.

9.3.3.2.3 The spill constitutes a release of a Reportable Quantity (RQ) of a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

9.3.3.2.4 The spill endangers human health or the environment for any other reasons.

9.3.3.3 The Contingency Plan is implemented due to an agent spill or release if:

9.3.3.3.1 Observation of an agent spill, leaking vapor, or mustard (garlic) odor outside of engineering controls.

9.3.3.3.2 Agent signs and/or symptoms in personnel are observed.

9.3.3.3.3 Agent is released to the environment, exceeding source emissions limits.

9.3.3.4 In the event that a spill or material release has occurred, follow section 9.4.1.

9.3.4 Decision Process

9.3.4.1 A logic diagram of typical initial response activities leading to implementation of the Contingency Plan is shown in Figure 9-6-1. Should the incident be of a minor or controllable nature (i.e., it presents no potential hazard to human health or the environment), the IC will not implement the Contingency Plan but will complete the necessary reporting per section 9.8.

9.4 *EMERGENCY RESPONSE PROCEDURES [R315-8-4.7]*

9.4.1 Notification [R315-8-4.7(a)]

9.4.1.1 Notification and Mobilization Overview

9.4.1.1.1 The ability to quickly alert and notify personnel during an emergency event is critical. Site personnel and emergency responders must be informed in a timely manner to be able to initiate emergency response actions and implement protective actions. Twenty-four hour reporting will be adhered to as required by Condition I.U. EG&G will also send all other required reports, notifications, and submissions as required by Condition I.AA.2. to the Executive Secretary and the EPA Region VIII as required by Condition I.AA.3.

9.4.1.1.2 At TOCDF and TOCDF-operated facilities, emergency notifications are performed by the TOCDF Control Room. Emergency conditions at TOCDF or TOCDF-operated facilities are most commonly indicated by system alarms sounding in the Control Room or by first responders at the event scene calling information into the Control Room (e.g., from the CAMDS CMO, ATLIC ~~Control Center Equipment Enclosure~~CCEE or Area 10 Igloo Control Point). All TOCDF alarms as well as the TOCDF-operated igloo ACAMS are centrally monitored in the Control Room; therefore, Control Room operators will often be aware of abnormal or emergency events as they occur. For the MDB, the Control

Room has visual monitors as well as agent and other alarms. The Control Room also monitors TOCDF plant systems and are therefore aware of which elements of a system may not be functioning properly. Because of their monitoring capability, the Control Room is most likely to notify personnel of an emergency or abnormal event based on direct and immediate input. First responder reports are the second most frequent means of event notification. All TOCDF personnel have been trained to call the Control Room when they recognize an emergency situation. No CAMDS or ATLIC alarms alert the control room directly; CAMDS personnel have been trained to call the CMO when they recognize an emergency situation at CAMDS, who will then notify the TOCDF CON. Likewise, ATLIC personnel have been trained to call the CON-OP when they recognize an emergency situation at ATLIC, who will then notify the TOCDF CON. The Control Room can be reached by telephone or by hand-held radio at the following numbers:

- Emergency (non-cellular) Telephone - Call 911.
- Telephone – (435) 833-7700.
- Control Room Cellular Telephone – (435) 830-2472.
- For reporting CAMDS site emergencies to the CMO, extension 4400 form a site phone or (435) 833-4400 from a cellular phone will be used. The CMO will notify the TOCDF Control Room for possible ERO activation.
- For reporting ATLIC site emergencies, call the CON-OP, extension TBD from a site phone or (435) 833-TBD From a cellular phone will be used. The CON-OP will notify the TOCDF Control Room for possible ERO activation.

9.4.1.1.3 The Control Room, which is staffed and operational 24 hours a day, 7 days a week, provides TOCDF and TOCDF-operated facilities with a 24-hour notification capability. They receive alarms and first responder reports and perform all further notifications required.

9.4.1.1.4 Control Room personnel record information provided by the caller on an Event Report form. The Control Room questions the caller to ensure all essential event information is obtained. The Control Room uses the Event Report form as the basis for all notifications.

9.4.1.1.5 Emergency event notifications are made to alert site personnel and mobilize emergency responders, including DCD support. Emergency notifications to off-post authorities are made via the DCD Emergency Operations Center (EOC). It is the responsibility of DCD to notify the public, as appropriate.

9.4.1.1.6 Notifications will serve to alert personnel that an emergency situation exists and provide specific instructions on required protective actions to be implemented.

9.4.1.2 Personnel Notification

9.4.1.2.1 The ability to quickly direct personnel from a danger area to a safe area and prevent offsite personnel from traveling into a danger area is vitally important. EG&G has a system in place for promptly notifying both onsite and offsite personnel of an emergency at TOCDF or any of the TOCDF-operated facilities.

9.4.1.2.2 *Site Personnel*

9.4.1.2.2.1 The TOCDF site-wide public address system is used to notify TOCDF personnel of an emergency. The system simultaneously reaches personnel inside TOCDF buildings, as well as those outdoors. The system is capable of providing both an alert signal and an emergency message throughout the site. CAMDS also possesses a CAMDS-wide public address system for notification of CAMDS personnel. ATLIC also possess an ATLIC-wide public address system for notification of ATLIC personnel.

9.4.1.2.2.2 The alert signal varies according to the type of event and action necessary. A warbler tone alerts personnel to immediately mask and await emergency instructions. A steady tone alerts personnel to evacuate to the muster area and mask if directed by the TOCDF Control Room, ATLIC CCEE or CAMDS CMO. A repetitive yelping tone alerts personnel in the TOCDF MDB to mask and evacuate. Whenever an agent alarm is activated, lights installed in the MDB begin flashing to alert personnel in high-noise areas of an emergency event. For a non-agent emergency, the phrase "Attention, all site personnel" is broadcast as the alert signal, which prompts personnel to listen for an important follow-on message.

9.4.1.2.2.3 An emergency message will quickly follow the alert signal to notify personnel of emergency events and, if necessary, provide protective action instructions. Instructional messages are clear and concise. They will contain the information necessary for personnel to protect themselves. Sheltering messages will include instructions on how to maximize protection when sheltering. Evacuation instructions will include, at a minimum:

- Hazard type.
- Hazard location.
- Danger areas to avoid.
- Muster area.
- Best path of travel.

9.4.1.2.2.4 Evacuation instructions will contain familiar terms and landmarks and be broadcast initially at least two times, then periodically repeated.

9.4.1.2.3 *Public Address System*

9.4.1.2.3.1 The TOCDF, ATLIC and CAMDS public address system consists of a signal generator, microphone, power amplifiers, and numerous loudspeakers installed throughout occupied buildings and outdoor areas across the site. The TOCDF and ATLIC system is on twin-diesel generator backup power and a UPS system. The CAMDS system is on diesel generator backup power. Emergency use and activation of the TOCDF PA system is controlled by Control Room operators, the ATLIC PA system is controlled by the CON-OP and the CAMDS PA system is controlled by CMO operators. The agent alarm and

evacuation alarm switches and the emergency microphone are also located there. When switched on, alarm signal and microphone messages override any other PA use.

9.4.1.2.3.2 In the event of microphone failure, a standard telephone can be used to make TOCDF site-wide or CAMDS site emergency announcements. Proper PA system functioning can be verified inside the Control Room and CMO by monitoring messages over Control Room and CMO loudspeakers. If the PA system fails during an emergency, radios and standard phones are used to dispatch runners to affected areas to make emergency announcements.

9.4.1.2.3.3 Emergency components of the TOCDF, ATLIC and CAMDS PA system are tested weekly. During each test, the agent alarm and evacuation alarm are sounded, along with a test message.

9.4.1.2.4 *Offsite Personnel*

9.4.1.2.4.1 Offsite TOCDF-operated facility (e.g., CAMDS, ATLIC, Area 10, etc.) personnel will be notified of an event on site in order to provide any off-site protective actions required and prevent offsite personnel from inadvertently traveling into a danger area prior to access control being established. The TOCDF Control Room will notify DCD EOC, who will activate the warning lights along the roads leading to TOCDF, CAMDS, ~~and~~ATLIC and Area 10 as necessary. When the flashing lights are on, no personnel may proceed past the lights without their masks donned. Prompt notification to nearby offsite locations will also prevent outside personnel from adding to the problem. Offsite locations to be notified of all emergencies involving site-wide protective action include:

- DCD EOC
- Chemical Assessment Laboratory (CAL)
- Receiving Warehouse and Transfer Yard
- Stark Road Office
- Area 2 Warehouses
- Area 10 Secondary Waste Facility
- CAMDS
- ATLIC

9.4.1.2.4.2 Notification of DCD personnel is performed by the EOC. EG&G notification of the EOC is described below. The CAL, Receiving, and the Stark Road Office will be notified of an emergency on site by standard phone. The Control Room will inform these locations of the emergency and any offsite protective actions required. The Control Room will also advise the sites to keep offsite personnel away from the TOCDF or TOCDF-operated facility; and, if site-wide sheltering is in effect, to instruct site personnel visiting their

facility to phone their supervisor for accountability purposes. EG&G personnel visiting Area 2 carry a cellular phone and will be notified by phone.

9.4.1.2.4.3 If an emergency occurs at any of the above-listed offsite locations, notification to the TOCDF Control Room may be accomplished using the same methods described above. In this situation, the CAL. Receiving, Stark Road Office, Area 10, ATLIC and CAMDS will promptly notify the TOCDF Control Room of an emergency at their location. In the event of an emergency at Area 2. TOCDF personnel working there will report it to the Control Room using a cellular phone or hand held radio. As discussed in 9.2.5, an emergency event at the CAMDS location is initially reported to the CMO by site phone extension 4400 or cellular telephone using (435) 833-4400. An emergency event at the ATLIC location is initially reported to the CON-OP by site phone extension TBD or cellular telephone using (435) 833-TBD.

9.4.1.2.5 *DCD Installation*

9.4.1.2.5.1 The Control Room will notify the EOC of all TOCDF and TOCDF-operated facility emergencies and chemical events using the EOC hotline phone, with standard phone and DCD radio as backup methods. Chemical events are defined in detail in Section 4. Definitions, of the DCD CAIRA Plan (current plan maintained on site). It is understood that within 10 minutes from initial confirmed detection of an actual or likely chemical agent release at the DCD installation, the DCD Commander or designee must report the event to the Tooele County Sheriff Dispatch Center. The Control Room shall therefore report all events immediately upon discovery to the EOC.

9.4.1.2.6 *EG&G Management*

9.4.1.2.6.1 EG&G senior management has an interest in any emergency event occurring in an area under EG&G control. The Control Room will promptly notify EG&G senior management of an emergency. At a minimum, the following managers or designees will be notified of all emergencies at TOCDF or TOCDF-operated facilities:

- General Manager
- Deputy General Manager for Risk Management and Technical Support
- Operations and Maintenance Manager
- CMA Shift Engineer
- CAMDS Closure Manager
- Operations Manager for ATLIC

9.4.1.2.6.2 If the IC decides to mobilize the Contractor Management Advisory Team, the Control Room will notify CMAT members.

9.4.1.3 Emergency Responder Notification

9.4.1.3.1 *Scene Response Teams*

Table 9-4-1[1] MUNITIONS AND BULK ITEM CHARACTERISTICS			
Item	**Agent**	**Fuzes**	**Bursters**
Ton containers	GA~~HD~~, HD, Lewisite	NO	NO

Notes:
[1] From: "Disposal of Chemical Munitions and Agents," National Research Council, Washington, D.C. 1984.

9.4.2.2.5 Bulk containers are standard one-ton tanks in which GA~~HD~~, HD and Lewisite -is stored.

9.4.2.2.6 Mortars and some projectiles contain mustard agent.

9.4.2.2.7 As mentioned, the ~~five~~ seven major agents slated for demilitarization are the three types of mustard, $C_4H_8Cl_2S$: Tabun (GA), $C_5H_{11}N_2O_2P$, Sarin (GB), $C_4H_{10}FO_2P$; Lewisite, $C_2H_2AsCl_3$ and VX, $C_{11}H_{26}NO_2PS$. The chemical and physical properties of the agents are summarized in Table 9-4-2 and are discussed in more detail in the following paragraphs.

Table 9-4-2[1]
CHEMICAL AND PHYSICAL PROPERTIES OF AGENTS

Agent	Chemical Formula	Molecular Weight	Boiling Point(°C)	Melting Point(°C)	Vapor Pressure (mm Hg)
H	$C_4H_8Cl_2S$	175	225	5 to 14	0.059 (20°C)
HD	$C_4H_8Cl_2S$	159	217	14	0.069 (20°C)
HT	$C_4H_8Cl_2S$ $C_8H_{16}Cl_2OS_2$	(HD = 159) (T = 263)	228	0	0.079 (20°C)
GA	$C_5H_{11}N_2O_2P$	162.13	248	-50	0.057 (25 °C)
GB	$C_4H_{10}FO_2P$	140	158	-56	2.9 (25°C)
Lewisite	$C_2H_2AsCl_3$	207.32	196	-44.7 to -1.8	34.6 (25 °C)
VX	$C_{11}H_{26}NO_2PS$	267	298	-50	0.00063 (25°C)

Notes:
[1] H, HD, HT, GB, VX data (U.S. ARMY, 1996, 1999, and 2001). GA and Lewisite data (MSDS June 2007)

9.4.2.3 GB (Sarin): Physical, Chemical, and Toxic Properties

9.4.2.3.1 GB, also known as Sarin, is the most volatile of the nerve agents in the stockpile and, for this reason, is mainly an inhalation hazard. This nerve agent will not, however, dissipate immediately if spilled. GB is clear to amber in color, with no odor. GB is readily hydrolyzed by either acid or base to relatively nontoxic products. The hydrolysis products, hydrofluoric acid and isopropyl methylphosphonic acid, can readily attack metal, which may explain degradation of some weapons. GB is miscible with water, but under neutral conditions (pH 7), the half-life for hydrolysis is several days.

9.4.2.3.2 *Effects of GB*

9.4.2.3.2.1 GB is an extremely active inhibitor of cholinesterase (ChE). By forcing the buildup of acetylcholine at the synapsis of cholinergic nerve fibers, GB causes victims to experience pinpoint pupils (miosis), increased salivation, abnormal tearing of the eyes, urination, diarrhea, convulsions, respiratory collapse, and death. A lethal dosage of GB is 100 mg min/m^3. Early treatment with oxime derivatives, such as pralidoximine, can accelerate regeneration of cholinesterase, especially in the peripheral nervous system. Treatment with atropine, an inhibitor of acetylcholine release, can also mitigate the toxicity of GB.

9.4.2.3.2.2 Victims surviving the acute cholinergic effects of GB may suffer delayed neuropathy syndrome characterized by degeneration of peripheral nerves and permanent paralysis. In addition, like similar compounds, GB may cause abnormal fetal development. For this reason, pregnant women are restricted from areas containing the agent.

9.4.2.3.2.3 Absorption of enough nerve agent by any route results in the following generalized effects upon the body system:

- Pupils become pinpoint, sometimes unequal (miosis)
- Frontal headache, eye pain, and slight dimness of vision occur
- Occasional nausea and vomiting

9.4.2.5 Mustard: Physical, Chemical, and Toxic Properties

9.4.2.5.1 Mustard agent comes in three varieties that differ mainly in purity. H is the crude agent made by the Levinstein process. Distillation of the crude material yields HD. A mixture of HD (60 percent) with a similar compound, T $(ClC_2H_4SC_2H_4)_2O)$, is termed HT. T is also known as bis 2 (chlorethylthioethyl)ether. HT has the advantage of a lower melting point than pure HD, which freezes at 15°C and, therefore, cannot be poured at low ambient temperature. Mustard belongs to a family of toxicants, the N-, S-, and O-mustards. Mustard is a colorless, oily liquid with a garlic odor. It quickly numbs the olfactory nerves, after which the odor is no longer detected. Although the boiling point is relatively high (225°C for H), it has a significant vapor pressure at ambient temperatures. Even in the solid state at 0°C, the vapor pressure is 0.025 mm of Hg, which is 28% of the vapor pressure at 30°C. Mustard is virtually insoluble in water, but, because of its high lipid solubility, it rapidly penetrates the skin. Mustard is considered to be a "persistent" chemical agent.

9.4.2.5.2 *Effects of Mustard*

9.4.2.5.2.1 Although inhalation of mustard produces pulmonary edema, it is classified as a vesicant. As such, it acts on the eyes, lungs, and skin, and burns and blisters the skin or any part of the body that comes in contact with it. Mustard has also been identified as carcinogenic, teratogenic, and mutagenic.

9.4.2.5.2.2 The eye is the most vulnerable part of the body to mustard. Long exposures to low concentrations or short exposure to high concentrations can result in permanent eye damage. The initial effect after skin contact is a reddening of the skin. Depending on the severity of exposure, the reddening may progress to blistering and tissue destruction. The initial exposure is not accompanied by a sensation, but, as the symptoms develop, there may be an itching or burning sensation, which develops to reddening and then to blistering. Inhalation of mustard vapor or aerosol causes damage to the mucous membranes of the upper respiratory tract. Damage from mustard exposure develops slowly and may not reach maximum severity for several days.

9.4.2.5.3 *Hazard Symbol for Mustard*

9.4.2.5.3.1 The hazard symbol for mustard is a yellow circle, 24 inches in diameter, with a black letter "H" in the center.

9.4.2.6 GA (Tabun): Physical, Chemical, and Toxic Properties

9.4.2.6.1 GA, also known as Tabun is a colorless to brown liquid; generally odorless, though possibly fruity. GA was manufactured as a warfare agent and is a lethal cholinesterase inhibitor. It has the same mechanism of toxicity as organophosphate insecticides but is much more potent. GA is considered to have moderately low persistence as it is less volatile than GB (sarin), but it is much more volatile than persistent agents, such as VX or HD. If released into water, GA would likely degrade from evaporation and hydrolysis, and be further broken down by dissolution and treatment processes such as chlorination. Environmental and hydrolytic degradation products of GA are not significant toxic concerns. However, liquid agent GA reaction with high-pH decon solutions (e.g., household bleach) may produce toxic intermediate products (e.g., cyanide gas).

9.4.2.6.2 *Effects of GA*

9.4.2.6.2.1 Signs/symptoms of exposure to GA will occur within minutes or hours depending on the dose. Even relatively low dose exposure to GA can be fatal, though immediate administration of an antidote can be lifesaving. Symptoms are dose dependent and may occur within seconds after exposure to vapors and within minutes or hours from exposure to liquid form. Mild: Runny nose, reduction in pupil size (miosis), dimness of vision, tightness of chest, difficult breathing. Moderate: Increased miosis (to level of pinpointing of pupils), headaches, confusion, drowsiness, nasal congestion, tightness of chest, nausea vomiting diarrhea, cramps, generalized weakness, twitching of large muscle groups. Severe: Involuntary defecation and urination, drooling, twitching, staggering, convulsions, cessation of breathing, loss of consciousness, coma, and death.

9.4.2.6.3 *Hazard Symbol for GA*

9.4.2.6.3.1 The hazard symbol for GA is a yellow circle, 24 inches in diameter, with a black letter "G" in the middle.

9.4.2.7 Lewisite: Physical, Chemical, and Toxic Properties

9.4.2.7.1 Lewisite is oily, colorless and odorless (if pure) to yellow brown (if impure) liquid with strong penetrating geranium odor for impure compounds. It was developed as a warfare agent that can cause severe injuries to the skin, eyes, and respiratory tract. Unlike the sulfur mustard blister agents, L is volatile and not persistent. Because of its volatility, it has been manufactured in mixtures (e.g., with sulfur mustard) to provide low freezing point for use in cold weather operations or as a high altitude spray agent. If released in air as small aerosolized droplets or as a vapor, pure L might last minutes to hours depending on weather conditions. Heat and moisture increase agent breakdown; vapors/droplets will likely settle in cooler/low-lying areas since L is heavier than air. L breaks down in hours to two toxic products, lewisite oxide and arsenic, which can persist for days or more. The effects caused by L are not typically fatal, but high enough concentration exposures (e.g., direct liquid contact, high vapor concentrations) can cause immediate eye pain and eye/skin/respiratory tract irritation with lesions forming hours later (this is unlike HD which has delayed effects). Low airborne concentrations may cause only temporary eye irritation. L can penetrate normal clothing. Dimercaprol (a.k.a. British Anti-Lewisite, 2,3-dimercaptopropanol) applied topically is an antidote for L exposure to skin. Persistence: *vapor:* hours-day; *liquid:* hours-day, depending on amount. Elevated temperatures, rain/other weather conditions will expedite degradation.

9.4.2.7.2 *Effects of Lewisite*

9.4.2.7.2.1 Immediate burning pain (eye and skin), skin redness within 15-30 min; then blister formation (approx. 12 hours post exposure) and deep skin burns. Time of onset and severity of effects depend on dose, duration, and route of exposure. Not all ignsisymptoms may develop. Inhalation: Immediate burning pain, bloody nose, violent sneezing, cough, lung edema, frothing mucous, sinus pain, shortness of breath; lung tissue damage at higher concentrations and exposure durations. Skin: Immediate stinging pain and redness within 30 minutes, blisters within 12 hours (depending on dose), deep skin burns. Ingestion (rare): Diarrhea, nausea, vomiting. Eyes: Instant pain, tearing,

irritation, and swelling of the eyelids. Corneal scarring, iritis, permanent damage and blindness within one minute.

9.4.2.7.3 *Hazard Symbol for Lewisite*

9.4.2.7.3.1 The hazard symbol for Lewisite is a yellow circle, 24 inches in diameter, with a black letter "L" in the middle.

9.4.3 Hazard Assessment [R315-8-4.7(c)]

9.4.3.1 Hazard Assessment Overview

9.4.3.1.1 Hazard assessment involves determining the type and nature of an emergency situation and its potential or actual impact. This leads to the determination of a hazard zone around the accident area, in which an unacceptable level of personnel hazard exits. Hazard assessment results serve as the basis for determining appropriate emergency response actions (e.g., hazard containment and control, selection and implementation of protective actions, mobilization of response personnel and equipment, etc.).

9.4.3.1.2 Hazard assessment will be performed continually during the response phase of an event. The initial assessment will involve determining, as soon as possible, the emergency hazard type, source, amount, severity, and scope. Event hazard assessment will be performed by the first responders, Scene Control Officer (SCO), response teams, Control Room personnel, and the Incident Commander (IC) with assistance from DCD during events involving the release of chemical agent. Subsequent assessments will support redefining the event hazard zone and redirecting response and protective actions as necessary.

9.4.3.1.3 The hazard assessment process involves the following primary activities: event detection; event information gathering; event assessment; determination of event hazard zone; and on-going verification of event hazard zone.

9.4.3.1.4 If a chemical agent release extends off-post, civilian authorities will become involved in extended or long-term assessment. This assessment will be primarily concerned with evaluating the impact of the event on the population and monitoring conditions to determine appropriate protective measures. On-going assessment will include identifying long-term adverse effects on air, soil, water, wildlife, etc.

9.4.3.1.5 In the event of a DCD emergency, which affects TOCDF or TOCDF-operated facilities, DCD performs hazard assessment and provides the appropriate protective actions.

9.4.3.2 Event Detection

9.4.3.2.1 *Emergency event assessment and response activities begin with the detection of an event.* Emergency events are identified primarily through the following means:

- Site personnel in the vicinity (who become event first responders)
- Control Room (via plant data monitoring)

- Detection equipment (for chemical agent)

9.4.3.2.2 Personnel working in the vicinity of the event area will be the individuals most likely to witness or discover an emergency situation. All EG&G personnel have been trained to the OSHA Hazardous Materials Awareness Level. This provides a strong site-wide emergency detection capability. Awareness level personnel are trained to initiate the emergency response process by performing an initial assessment of event conditions and contacting the Control Room. The awareness training course covers the following basic concepts: Identification of emergency situations: Hazardous substances and their dangers and risks; Recognition of the presence of hazardous substances in an emergency; Identification of hazardous substances; and the Role of the first responder in the emergency response process. including use of the US DOT Emergency Response Guidebook.

9.4.3.3 Event Information Gathering

9.4.3.3.1 It is important to gather as much information about an emergency event as soon as possible after detection. Accurate and timely event information results in a more comprehensive assessment, which leads to implementation of the most appropriate response actions.

9.4.3.3.2 The first information likely to be available during an emergency will be from the first responders on the scene. Except ATLIC and CAMDS personnel, all site personnel are taught to report emergency situations to the TOCDF Control Room. The TOCDF Control Room and/or the CAMDS CMO can be reached by telephone or by hand-held radio at the ~~following numbers:~~numbers listed below (contact information for emergencies at ATLIC is described in the 5th bullet).

- Emergency (non-cellular) Telephone - Call 911.
- Telephone – (435) 833-7700.
- Control Room (on cellular phone) – (435) 830-2472.
- For initial reporting of CAMDS site emergencies ~~t~~to the CMO, extension 4400 on a site phone or (435) 833-4400 from a cellular phone will be used.
- For initial reporting of ATLIC site emergencies to the CCEE, extension TBD on a site pone or (435) 833-TBD from a cellular phone will be used.

9.4.3.3.3 The information provided by first responders will allow for an initial assessment of TOCDF events to be performed by the TOCDF Control Room, ATLIC CCEE -or CAMDS ~~events to be performed by the~~ CMO. However, to support the complete emergency event assessment process, the following information must be known or projected:

9.4.3.3.3.1 Nature of release:

- Hazard type
- Hazard amount (small, moderate, or large)

9.4.3.4.3.1 The SCO and IC gather event information through direct observation and input from advisors. The SCO, who is typically the first outside responder on the scene, provides event information to the IC, Control Room, and response teams.

9.4.3.4.4 *Information from TOCDF Control Room*

9.4.3.4.4.1 The Control Room serves as the technical center for TOCDF plant system information as well as a reference for TOCDF technical information. Control Room personnel monitor the status of TOCDF plant systems and activities via monitoring systems, which feed directly to computer terminals. The CAMDS CMO and the ATLIC CCEE serves a similar purpose for the CAMDS site. However, the TOCDF Control Room acts as a central point for collecting, assessing, and distributing event information from responders for events at all TOCDF-operated facilities. The Control Room also assists scene responders in obtaining required resources and forwards DCD Meteorological/Detection Teams (Met/Det) results, provided by the EOC, to the SCO.

9.4.3.4.5 *Information from Monitoring and Sampling Teams*

9.4.3.4.5.1 For emergency events involving the release of chemical agent or industrial chemicals, monitoring and sampling will be performed to confirm the release plume location and levels. Monitoring and sampling activities will be initiated as soon as possible after emergency event detection. Initial monitoring will focus on broadly defining the hazard and its impacts. Subsequent monitoring (and sampling) will provide more detailed hazard release characteristics.

9.4.3.4.5.2 The HAZMAT Team will perform airborne monitoring as necessary during events involving the release of industrial chemicals. The HAZMAT team will use an air pump instrument and associated detector tubes for the chemical(s) involved to perform air monitoring. Monitoring personnel will perform environmental sampling (e.g. surface, soil, water) as directed by the IC.

9.4.3.4.5.3 For events involving the release of chemical agent, DCD will dispatch Met/Det Teams. Chemical agent samples will be taken to a lab located at DCD.

9.4.3.4.5.4 DCD agent monitoring and sampling will be accomplished using the following equipment:

9.4.3.4.5.4.1 Real Time Analysis Platform (RTAP): Combines gas chromatograph with an automatic continuous environmental monitoring system in a self-contained mobile platform; provides low-level chemical agent monitoring capability. RTAPs required by an event at TOCDF or a TOCDF-operated facility will be provided by DCD.

9.4.3.4.5.4.2 Depot Area Air Monitoring System (DAAMS)

9.4.3.4.5.4.3 Air sampling unit designed to provide low-level detection capability for GA, GB, H, Lewisite and VX agents requires lab analysis.

9.4.3.4.5.5 In the event off-post monitoring and sampling are required, DCD, via the EOC, may provide resources and assistance to local off-post agencies requesting support.

9.4.5.1.3 The TOCDF is equipped with both smoke and heat detectors in designated areas that alarm in the Control Room. The fire suppression system is designed to extinguish a fire before the fire increases the amount of agent available for release to the environment. In addition, the fire suppression system reduces the temperature produced by a fire to prevent rupturing of agent storage tanks/containers and piping, and the detonation of explosively configured munitions.

9.4.5.1.4 All fire response personnel are provided with the appropriate protective clothing and safety equipment. Care must be taken to contain and recover any runoff of waste and water, foams, or chemicals applied to the fire. If possible, the area should be diked and/or any runoff drains blocked prior to using liquids to put out the fire. Once extinguished, the materials involved in the fire and surrounding area are decontaminated, if necessary, recovered, and placed in containers for proper disposal.

9.4.5.1.5 In the event of a fire, the major effort is placed on preventing the fire from spreading to nearby areas. The following actions are taken in indoor areas affected by a fire or explosion:

- Fire doors in buildings are closed.
- Hazardous work in all areas are terminated immediately.
- All feed lines to furnaces and additional equipment are shut down, as necessary and practical.
- The IC is contacted.
- The area is cleared of all personnel not actively involved in fighting the fire. Non-emergency personnel are to report to the designated assembly point for a head count.
- All injured persons are removed, and medical treatment is administered by qualified personnel.

9.4.5.1.6 The IC is responsible for all firefighting efforts until help from outside the facility arrives. Supervisors of unaffected areas will stay with their personnel and will be ready to evacuate and account for the persons under their supervision.

9.4.5.2 Fire Reporting and Evacuation

9.4.5.2.1 *Immediate Actions*

9.4.5.2.1.1 As soon as any fire of any size is found at any TOCDF-operated facility, the Control Room must be notified as described in this plan. If the fire is observed visually and no automatic alarms are activated, the individual noticing the fire pulls the nearest manual alarm in the area. If the sprinkler, dry chemical, Halon or FM-200/FE227 systems are activated, ample time should be given for them to operate. When the fire is extinguished, the alarms should be deactivated. After the size and location of the fire is determined, he announces "Fire in the (specify room, building, area, etc.), stand by for instructions." on the TOCDF, CAMDS or ATLIC public address system ~~or the CAMDS public address~~

~~system as appropriate~~. The CAMDS, ~~and~~ TOCDF and ATLIC public address systems are operated from the CMO, ~~and~~ CON and CCEE only, respectively; the systems are entirely independent from one another. If the public address system is not functional, operators are used to pass instructions. Anyone in immediate danger must be assisted, if safe to do so. At TOCDF, all unpacking and munitions processing will stop until further evaluation of the event has been completed.

9.4.5.2.1.2 The Control Room Operator and/or the CAMDS PSM notifies the IC and gives the information as noted below. The following information is also relayed to other appropriate personnel:

(a) Location of fire
(b) Type of fire (if known)
(c) Hazardous material involved
(d) Number of known casualties
(e) Type of injuries (if known)

9.4.5.2.1.3 The IC determines the course of action based on the seriousness of the situation. The seriousness or size of a fire is a subjective decision that must be made as quickly as possible. If there is ever any doubt on the course of action to be taken, a large fire is assumed.

9.4.5.2.2 *Subsequent Actions*

9.4.5.2.2.1 Subsequent actions depend on the magnitude of the fire and, more importantly, the location. Procedures will be followed during firefighting activities at TOCDF or any TOCDF-operated facility.

9.4.5.2.2.2 The DCD Fire Department is responsible for fighting the fire at TOCDF or TOCDF-operated facility. The IC directs the appropriate person to remain with the DCD Fire Department during firefighting for assistance with technical advice.

9.4.5.2.2.3 An Emergency Response Team dressed in appropriate protective clothing enters the building to conduct reentry monitoring only after receiving approval from the IC, DCD Fire Department Chief, and Safety Representative.

9.4.5.2.2.4 The IC, Safety Representative and any other applicable personnel assess the damage and determine any further course of action to be taken.

9.4.5.3 Fires and Agent Releases

9.4.5.3.1 If an agent release occurs during or as a result of a fire, the offgases from the fire may contain toxic chemicals. As a precaution, all personnel fighting fires are in appropriate protective clothing at all times. The potentially toxic offgases cannot be controlled, but every effort is made to quickly extinguish the fire with the fire suppression system and douse any agent leaks with decontaminant when the scene is rendered safe.

9.4.5.3.2 After a fire involving chemical agents has been controlled and extinguished, the Emergency Response Team closely monitors the affected area to determine that all traces of chemical agents have been thoroughly decontaminated. For events outside the

by the IC or his designee to ensure that the equipment is clean and fit for future use. Once this inspection is complete and the appropriate notifications have been made. operations may resume in the affected area.

9.4.9 Container Spills and Leakage [R315-8-4.3, R315-8-9.2]

9.4.9.1 If there is a spill. leak, or release from a container, which could threaten human health or the environment, the EG&G Emergency Response Plan (ERP) will be implemented. If this release involves a chemical agent and/or munitions. then the Chemical Accident/Incident Response and Assistance (CAIRA) Plan (Appendix A of the ERP) will also be implemented. These plans provide detailed procedures, which encompass the various aspects of emergency response, including: notification, mobilization. PPE requirements, hazard assessment. emergency response, recovery, etc.

9.4.9.2 If the spill. leak. or release from a container could threaten human health or the environment, then this section of the Contingency Plan will also be implemented. This section of the Contingency Plan augments the procedures provided in the ERP and the CAIRA Plan by focusing on procedures for responding to releases from containers.

9.4.9.3 If an agent release is involved, the first individual to observe the release will mask and notify the TOCDF Control Room (or CAMDS CMO or ATLIC CCEE as described herein). The procedures described in the ERP and CAIRA as well as the procedures identified below will then be followed. If a non-agent release is encountered. then the first individual to observe the release will do the following:

- Alert other nearby workers and. if outside, move upwind of the release.
- Contact the Control Room (or CAMDS CMO or ATLIC CCEE) who will contact the Control Room), which will then notify the Emergency Coordinator; report the release. location, nature of material spilled (if known): and report the estimated amount involved.
- Prevent access to the area by vehicles or other personnel.
- Follow instructions offered by the Emergency Coordinator or the Control Room.

9.4.10 Tank Spills and Leakage [R315-8-10 [40 CFR 264.194©]]

9.4.10.1 If there is a spill, leak. or release from a tank system, which could threaten human health or the environment, the EG&G Emergency Response Plan (ERP) will be implemented. If this release involves a chemical agent, then the Chemical Accident/Incident Response and Assistance (CAIRA) Plan (Appendix A of the ERP) will also be implemented. These plans provide detailed procedures. which encompass the various aspects of emergency response. including: notification, mobilization, PPE requirements, hazard assessment. emergency response, recovery, etc.

9.4.10.2 If the spill, leak, or release from a tank system could threaten human health or the environment, then this section of the Contingency Plan will also be implemented.

9.4.11 Spills and Leakage from Other Regulated Units

9.4.11.1 Spills and leakage from other units at the TOCDF or TOCDF-operated facilities are possible. These TOCDF units include the incineration systems (LIC1, LIC2, DFS, MPF), the associated pollution abatement systems, the Subpart X units (BDS, PMD, MDM, Area 10 Autoclave, DVS/DVSSR), and Slag Removal System (SRS). CAMDS units include various permitted HWMUs that support CAMDS closure such as tanks, sumps and container storage areas specified in this Permit. The ATLIC units includes the LIC, associated PAS system and various permitted HWMUs that support ATLIC operations such as tanks and sumps specified in this Permit.

9.4.11.2 If there is a spill, leak, or release from a unit identified above, which could threaten human health or the environment, the EG&G Emergency Response Plan (ERP) will be implemented. If this release involves a chemical agent and/or munitions, then the *Chemical Accident/Incident Response and Assistance (CAIRA) Plan (Attachment A of* the ERP) will also be implemented. These plans provide detailed procedures, which encompass the various aspects of emergency response, including: notification, mobilization, PPE requirements, hazard assessment, emergency response, recovery, etc.

9.4.11.3 If an agent release is involved, the first individual to observe the release will mask and notify the Control Room (or the CAMDS CMO or the ATLIC CCEE). The procedures described in the ERP and CAIRA as well as the procedures identified below will then be followed. If a non-agent release is encountered, then the first individual to observe the release will do the following:

- Alert other nearby workers and, if outside, move upwind of the release.
- Contact the Control Room (or the CAMDS CMO who will contact the Control Room), which will then notify the Emergency Coordinator, report the release, location, nature of material spilled (if known), and the estimated amount involved.
- Prevent access to the area by vehicles or other personnel.
- Follow instructions offered by the Emergency Coordinator or the Control Room.

9.5 EMERGENCY EQUIPMENT [R315-8-4.3(d)]

9.5.1 Reserved.

9.5.2 Communication and Alarm Systems

9.5.2.1 Communications inside the *TOCDF will* be achieved through a telephone system and the TOCDF public address (PA) system. Telephones are located so that each employee has access to one from his workstation. An employee can call the Control Room or any other telephone in the TOCDF and can be connected to an outside phone line from site telephones. Employees can access the PA system for paging by using or by contacting designated telephones throughout the site or by contacting the Control Room. The paging system will be broadcast through a series of loudspeakers to provide coverage throughout the active portion of the facility. Two-way radios are also available for onsite *communication. The TOCDF is connected to the local telephone system to enable*

external communications. Alarms will be broadcast over the PA system loudspeakers. The agent and evacuation alarms will be initiated by the Control Room. The alarm to mask and await further instructions will consist of a warble tone (oscillating whine) broadcast. The alarm for site evacuation and masking, if directed by the Control Room will consist of a steady-tone broadcast. The alarm to mask and evacuate personnel within the MDB will consist of a repetitive yelping tone. Generally, the alarms will be accompanied by instructions from the Control Room, which include event-specific instructions. Area 10 Igloo communications with the main TOCDF Control Room will be via the TOCDF-staffed Igloo operations control point by telephone or two-way radio.

9.5.2.1.1 Although the TOCDF CON is the communications center for emergencies at any TOCDF-operated facility, communications within the CAMDS facility can be achieved through the telephone system and the CAMDS PA system. CAMDS employees can call the CMO or any other telephone at the CAMDS or TOCDF, and can be connected to an outside phone line. CAMDS employees can request PA announcement by contacting the CMO. The message will be broadcast through a series of loudspeakers to provide coverage throughout the CAMDS site. Alarms specific to the CAMDS site will be broadcast over the CAMDS loudspeakers. Agent and evacuation alarms at CAMDS will be initiated by the CMO. The alarm to mask and await further instructions will consist of a warble tone (oscillation whine) broadcast. CAMDS alarms will be accompanied by instructions from the CMO, which include event-specific instructions. Emergency communication at the ATLIC is the same as the CAMDS facility with the exception of reporting to the CMO. ATLIC employees need to call the CCEE.

9.5.2.2 System Design

9.5.2.2.1 TOCDF and TOCDF-operated facilities emergency communications are performed by standard telephone, hotline telephone, cellular phone, radio, and face-to-face contact.

9.5.2.2.2 All Emergency Response Organization members have received training in emergency communications. Common terminology has been developed to ensure clear communications. All personnel assigned radios have been trained in the use of those radios. Entry teams have been trained to remain in visual contact with their buddy.

9.5.2.2.3 All communications links are backed up. A minimum of two channels will be available on all radios. Within the areas with the highest probability of emergency incidents (MDB, unpack) emergency phones have been strategically located. If required, the public address system, which is on an uninterrupted power source, could be utilized for one-way emergency communications on site. The system can be addressed to site-wide or specific locations. The system can be accessed through several identified facility standard telephones.

9.5.2.2.4 The attached Emergency Communications table (Table 9-5-1) provides detailed information regarding the types of equipment used for emergency communication. Links beyond the DCD Emergency Operations Center (DCD EOC) to Army, local, State, and Federal agencies are covered in the DCD CAIRA Plan.

Table 9-5-1 **TOCDF and TOCDF-Operated Facility Emergency Communications**
Phone Systems

Table 9-5-1 TOCDF and TOCDF-Operated Facility Emergency Communications	
Standard Phones	Lines into the site and on the site are buried. The phone system is on an uninterrupted power supply. The backup power supply provides six hours of margin. If there is a loss of offsite (outside of TOCDF) power the system will continue to provide communications on the site, but will not provide communications offsite.
Hotline Phones	There are four hotline phones on site, all of which connect with the Control Room. These phones are located in the Entry Control Facility, Clinic, DSA, and DCD EOC. These phones, which are independent of the standard phone system, have an uninterrupted power supply that provides six hours of margin.
Radio Network	
~~Daily Operations~~	~~The TOCDF radio network consists of six channels ranging from 151.505 MHz to 151.955MHz. For daily operations each of the following groups are assigned one of the six channels.~~ ~~Emergency Response Teams~~ ~~Maintenance – Monitoring~~ ~~Operations – LIC 1 & 2, MPF~~ ~~Operations – DFS~~ ~~Operations – PAS~~ ~~Operations – Utilities~~
Emergency Operations	For emergency operations, the following response personnel will be assigned a specific radio channel (1 through 6). Emergency Responder Control Room Operators IC SCO Safety Advisor Environmental Advisor HAZMAT Team Decon Team Leader Rescue Team Leader Paramedic Team Leader TOCDF Clinic Furnaces (PAS) Utilities CAL Appropriate radios are distributed to emergency response teams. DCD utilizes a Motorola Saber 16-channel radio system with 12 assigned frequencies ranging from 139.035 MHz to 148.975 MHz. There are four portable radios with DCD frequencies assigned to TOCDF. In an emergency they will be used by the IC and Clinic. In addition, the Control Room maintains a DCD radio base station with 12 assigned frequencies.

agent are available at Area 10 to support CAMDS. These are maintained by Deseret Chemical Depot Ammunition Storage Division for CAMDS and munition storage missions.

9.5.3.7 ATLIC Additional Equipment

9.5.3.7.1 The ATLIC would also be supported by the TOCDF Emergency Response teams should a large spill occur. ATLIC has additional spill response and decontamination equipment and resources located in the immediate vicinity. There are two tanks for storage of the decontamination solution for agents GB and VX. Truck mounted decontamination units with decontaminants for GB, VX, and mustard agent are available at Area 10 to support ATLIC. These are maintained by Deseret Chemical Depot Ammunition Storage Division for ATLIC and munition storage missions.

9.5.4 Emergency Equipment

9.5.4.1 Fire Extinguishing Equipment

9.5.4.1.1 Sprinklers Halon and FM-200/FE-227 systems are capable of operating automatically to extinguish fires in the TOCDF areas in which they have been placed. These areas include the UPA (sprinklers) and areas where electronic equipment is in use (Halon). Chemical type fire suppression systems protect the ATLIC, CAMDS CMO, SAF Lab, SAF chemical storage room, and the CUB. Portable fire extinguishers are available throughout the facilities and are capable of extinguishing small fires. The facility structures are generally designed to be fire-resistive. An automatic detection and alarm system is placed throughout the TOCDF facility. Fire response forces have available portable extinguishers, a complete site firewater distribution system, and emergency response equipment similar to that of a municipal fire department.

9.5.4.2 Emergency Personal Protective Equipment

9.5.4.2.1 *Emergency Personal Protective Equipment Overview*

9.5.4.2.1.1 This plan section presents an overview of how the PPE available to EG&G will be utilized by personnel responding to a release event of chemical agent or industrial chemicals at a TOCDF-operated facility. Response to an agent release will require use of agent approved PPE by responders entering toxic or contaminated areas. The general work force is required to don Army air purifying respirators (masks) immediately upon notification by the Control Room, ATLIC CCEE or CAMDS CMO of any unusual event that could result in a release of agent impacting the TOCDF-operated facility work site. All personnel who enter the vicinity of TOCDF, CAMDS, ATLIC or DCD Area 10 sites are trained in the use of, have issued to them, and are required to be prepared to use an Army protective mask. The use of the Army mask is for egress only in the event of an agent release. Response to industrial chemical releases and spills require the wearing of OSHA PPE.

9.5.4.2.1.2 The TOCDF facility was designed and constructed with the overriding consideration that "The use of personal protective equipment (PPE) is the least desirable method of exposure control." Based on hazard analyses, the reduction of dependence upon PPE was designed into all areas and operations of the TOCDF.

9.5.4.2.1.3 The TOCDF and TOCDF-operated facilities conduct operations in areas where no amount of design and engineering can alleviate the requirements to wear PPE. These requirements for wearing PPE are dependent on a number of factors that include the type of operations performed in an area and the likelihood of the presence of agent during normal or abnormal conditions. Selection of the appropriate level of protection is determined by the potential level of exposure/contamination that exists in the specific environment and the task to be performed.

9.5.4.2.2 *Chemical Agent Ventilation/Hazard Categories*

9.5.4.2.2.1 Each room and/or building at TOCDF, ATLIC and CAMDS has a designated category rating of A, B, C, D, or E based upon the potential for agent contamination during normal munitions and support operations. Categories may be temporarily upgraded to correspond with increased hazard potential.

9.5.4.2.2.1.1 Rooms assigned a Category A rating have probable agent liquid and likely vapor contamination.

9.5.4.2.2.1.2 Rooms assigned a Category A/B are evaluated for contamination probability depending on the operations being performed and the materials present.

9.5.4.2.2.1.3 Rooms with a Category B rating have possible vapor contamination only resulting from routine operations.

9.5.4.2.2.1.4 Rooms with a Category C rating have a low probability of agent vapor contamination.

9.5.4.2.2.1.5 Rooms with a Category D rating have a very low probability of ever being contaminated by agent.

9.5.4.2.2.1.6 Rooms and areas with a category E rating are maintained from being contaminated by agent at all times barring the possibility of a catastrophic event.

9.5.4.2.3 *Descriptions of Personal Protective Equipment Ensembles*

9.5.4.2.3.1 Level A (A1-A2) clothing is used for entry into agent toxic areas with agent vapor and liquid present based on the OSHA and Army criteria for chemical agent activity. Level A provides positive pressure, full-face, self-contained breathing apparatus (SCBA), or positive pressure supplied air line respirator with self-contained escape air supply, approved by NIOSH, and totally encapsulating, vapor-tight, chemical protective suit. The Demilitarization Protective Ensemble (DPE) suit (Level A1) is normally used within the agent areas of the Munitions Demilitarization Building. In any of these areas where an emergency occurs, the DPE suit is worn unless the emergency conditions themselves preclude the use of the suit. In those circumstances, M3 B (B1) (formerly known as Modified Level A) or OSHA Level A protective clothing is used. This equipment is available at the Demilitarization Protective Ensemble Support Area (DSA) in the TOCDF Personnel Maintenance Building. (PMB)

9.5.4.2.3.2 M3 B (B1) (formerly known as Modified Level A) or OSHA A clothing is the highest level of protection available at the site, excluding the DPE suit. OSHA A or M3 B (B1)

Group	Method of Contact
TOCDF Site Personnel	Public Address System
On-Scene Responders	Public Address System, Telephone, & Radio
CAL	Telephone
Stark Road Offices	Telephone
DCD (via EOC)	Telephone
CAMDS	Public Address System & Telephone
ATLIC	Public Address System & Telephone

9.7.2.8 It is important that all affected personnel and groups immediately carry out protective actions.

9.7.2.9 DCD is responsible for providing protective action recommendations to off-post authorities. DCD bases their recommendations in part on information received from EG&G. The TOCDF Control Room provides DCD's Emergency Operations Center with the identical information used to develop the site protective actions. Final determination of off-post protective actions is the responsibility of off-post elected officials.

9.7.2.10 The IC periodically assesses event conditions and evaluates the appropriateness of existing protective actions (in coordination with the CAICO in Chemical Accident/Incidents). Only the IC (CAICO in Chemical Accident/Incidents) has the authority to upgrade or downgrade protective actions as appropriate.

9.7.3 Protective Action Implementation

9.7.3.1 Protective Masks and Agent Antidotes

9.7.3.1.1 All personnel in the vicinity of TOCDF, CAMDS and Area 10 are issued military protective masks. Included in the issuing process is performance of a fit test and training on mask use and upkeep. The masks are examined annually at a minimum by the issuing branch, and each individual is responsible for performing a visual inspection of their mask monthly.

9.7.3.1.2 The protective masks are designed to prevent inhalation of chemical agent vapors by personnel. The masks are not designed or intended to be used to limit exposure to any substances other than chemical agent. If the IC determines that the donning of protective masks is an appropriate protective action, affected personnel will be notified via the methods discussed in Section 9.7.2 of this Contingency Plan.

9.7.3.1.3 In addition to military protective masks, all TOCDF, CAMDS and Area 10 personnel have been issued three Mark I nerve agent antidote kits. Each kit contains two injectors: Atropine (2 mg) and Pralidoxime Chloride (600 mg). The injectors will be used whenever two or more signs or symptoms of mild/moderate nerve agent exposure are being exhibited or whenever one or more signs or symptoms of severe nerve agent exposure are being exhibited. The injectors will be applied to either the outer thigh muscle or the upper, outer-quarter of the buttocks. Site personnel have been trained in identifying agent exposure symptoms and in the use of antidote injectors when they are issued the Mark I kits.

Table I-1-1
TOOELE CHEMICAL AGENT DISPOSAL FACILITY CLOSURE SUMMARY

Facility or Unit	Description of Closure Activity Following Removal From Service
	must obtain a separate and independent RCRA operating permit.
DVS and DVSSR (Igloo 1632)	Waste will be removed from the DVS and DVSSR equipment then the equipment will be decontaminated and disposed properly.
Autoclave Subpart X Treatment Unit (DCD Igloo 1631)	Empty Autoclave will be maintained at operating temperature and pressure for 24 hours to achieve a safe on-site management status. Formal closure of Igloo 1631 will be accomplished vial the general DCD Area 10 Closure Plan, Attachment 5 of the DCD RCRA Permit.
DCD Area 10 Igloos 1632 and 1633	Waste will be removed from the igloos and the containment systems removed or decontaminated. Formal closure will be accomplished via the general DCD Area 10 Closure Plan, Attachment 5 of the DCD Part B Permit.
Area 10 Liquid Incinerator (ATLIC)	Operated at idle (i.e., no hazardous waste feed) at agent processing operating temperature for 24-hr then shut down. Scrubber Sump, pumps, and ancillary piping drained, Bag-House ash and filter elements removed, Fixed-Bed Carbon filter activated carbon and filter elements removed and disposed of per the Attachment 2. Incinerator and PAS components decontaminated and disposed of per ATLIC specific closure plan to be submitted as a permit modification to this attachment by the date specified in Module II of this permit.
ATLIC Ton Container Rinse/Drain Glove-boxes	Decontaminated and disposed of per ATLIC specific closure plan to be submitted as a permit modification to this attachment by the date specified in Module II of this permit.
ATLIC Hazardous Waste Storage Tank Systems (to include the Lewisite Agent Collection Tank System, Spent Decontamination Tank System, and Nitric Acid Holding Tank System)	Decontaminated and disposed of per ATLIC specific closure plan to be submitted as a permit modification to this attachment by the date specified in Module II of this permit.
Other Facilities (Not RCRA-regulated units or non-permitted units)	
Residue Handling Area and Spent Filter Media Storage Area in Toxic Maintenance Area, Munitions Demilitarization Building (container storage area for brine salts, incinerator and furnace ash and residues, baghouse, cyclone residues, and spent filter media)	All containerized wastes from the Residue Handling Area will be shipped directly to an offsite licensed TSDF during closure of incineration system and Brine Reduction System. All filter media from demilitarization operations from the Filter Media Storage Area will have been incinerated prior to the commencement of

Table I-1-2
MAXIMUM WASTE INVENTORY

Hazardous Waste Management Unit	Waste	Volume or Unit	Munition/Agent
Container Handling Building	Agent	36,555 gallons	Ton Containers
The S-2 Warehouse	Site Generated Waste	38,720 gallons	N/A
Igloo 1631	Site Generated Waste	1,937 gallons	N/A
Igloo 1632	Site Generated Waste	14,520 gallons	N/A
Igloo 1633	Site Generated Waste	14,520 gallons	N/A
Unpack Area	Agent	3,424 gallons	Ton Containers
Explosive Containment Room Vestibule	Agent	833 gallons	Ton Containers and Mines
Upstairs Munitions Corridor	Agent	4,366 gallons	Ton Containers and 155-mm Projectiles
TMA Container Storage Area	Agent-Contaminated	2,200 gallons	N/A
TMA Airlock Area	Agent	381 gallons	Ton Containers
TMA Decon Area	Agent	381 gallons	Ton Containers
Liquid Incinerators--Agent Feed Tank System (ACS-TANK-101, 102 and ancillary equipment)	Agent	1,883 gallons	N/A
Brine Reduction Area Storage Tank System (BRA-TANK-101, 102, 201, 202 and ancillary equipment) Note 1	Scrubber Brine	188,800 gallons	N/A
Spent Decontamination Holding Tank System (three tanks (SDS-TANK-101, 102, 103 - max. allowable working capacity = 2,200 gal each) and ancillary equipment, 1 sump @ 512 gallons, 57 sumps @ 89 gallons, 1 sump @ 85 gallons, 4 sumps @ 75 gallons, 1 sump @ 68 gallons and pumps and piping.) Note 2	Decontamination Solution	15,180 gallons	N/A
Area 10 Liquid Incinerator (ATLIC)	Agent Spent Decontamination Solution	N/A	N/A
ATLIC Ton Container Rinse/Drain Glove boxes @ one 170-gallon TC/glove-box, two glove-boxes	Agent	340 gallons	Agent GA & Lewisite/Ton Containers
ATLIC Lewisite Collection Tank	Agent	1,200 gallons	Lewisite/Ton Containers
ATLIC Spent Decontamination Solution Tank	NaOH based Spent Decon	1,200 Gallons	N/A

Table I-1-2
MAXIMUM WASTE INVENTORY

Hazardous Waste Management Unit	Waste	Volume or Unit	Munition/Agent
	Solution		
ATLIC Nitric Acid Holding Tank System	Waste Generated from operation of the Nitric Acid Purification System	2,400 Gallons	N/A
ATLIC Major Spill Tank	Contingency Storage for other ATLIC Storage Tank	1,200 Gallons	N/A

Notes
1. Volume of ancillary equipment (e.g. piping, pumps, trenches, etc.) was assumed to be 10 % of the total tank capacities.
2. Volume of ancillary equipment (e.g. piping, pumps, trenches, etc.) was assumed to be 20 % of the total tank capacities.

Vendor Drawings				
DRAWING NUMBER	DRAWING TITLE	REV. #	REV. DATE	APPROVED RCRA BASELINE
90-8890-A 1 of 6	LIC 1 Quench Tower	10	05/01/97	Y
90-8890-B 1 of 6	LIC #2 Quench Tower	12	07/16/98	Y
90-8890-C 1 of 8	LIC 1 Scrubber Tower	6	01/11/98	Y
90-8890-E 1 of 7	DFS Quench Tower	6	02/23/98	Y
90-8890-F 1 of 8	DFS Scrubber Tower	8	02/13/98	Y
90-8890-H 1 of 6	MPF Quench Tower	5	02/06/98	Y
90-8890-J 1 of 8	MPF Scrubber Tower	8	01/27/98	Y
C-400441	RB 453 Pressure Blower Arrangement 4 CCW-1B from Drive End	6	08/29/97	Y
D-905706-M101	PT-12-14-16 GENERAL ARRANGEMENT	10	05/15/96	Y
HM-1028 1 of 11	LIC Demister Vessel 04-PAS-DMIS-101 GENERAL ARRANGEMENT	6	08/26/97	Y
HM-1028 4 of 11	MPF Demister Vessel 04-PAS-DMIS-103 GENERAL ARRANGEMENT	5	04/21/93	Y
HM-1028 5 of 11	DFS Demister Vessel 04-PAS-DMIS-104 GENERAL ARRANGEMENT	5	06/06/95	Y
RD-13549-3 5 of 15	Refractory Lining for Cross-Over Duct of Liquid Incinerator System GENERAL ARRANGEMENT & DETAILS	4	04/15/97	Y

ATLIC DRAWINGS				
DRAWING NUMBER	DRAWING TITLE	REV. #	REV. DATE	APPROVED RCRA BASELINE
EG-22-A-8211 Sht 1 of 11	Process Building Architectural Floor Plan	2	12/12/09	Y
EG-22-A-8212 Sht 1 of 3	Igloo Architectural Floor Plan	2	12/14/09	Y
EG-22-C-8213	Site Paving and Grading Plan	2	12/18/09	Y
EG-22-D-8210 Sht 1 of 2	LIC Primary P&ID	3	12/17/09	Y
EG-22-D-8210 Sht 2 of 2	LIC Secondary P&ID	3	11/17/09	Y
EG-22-D-8211 Sht 1-4	PAS P&ID	3	12/14/09	Y
EG-22-D-8212	Glovebox 8501 P&ID	2	11/06/09	Y
EG-22-D-8213	Glovebox 8502 P&ID	2	11/06/09	Y
EG-22-D-8214	Lewisite Collection System P&ID	2	11/06/09	Y

ATLIC DRAWINGS				
DRAWING NUMBER	DRAWING TITLE	REV. #	REV. DATE	APPROVED RCRA BASELINE
EG-22-D-8215	Nitric Reject Collection System P&ID	2	11/06/09	Y
EG-22-D-8216	Nitric Acid Collection System P&ID	2	11/12/09	Y
EG-22-D-8217	Spent Decon Collection System P&ID	2	11/12/09	Y
EG-22-D-8219	Major Spill Collection System P&ID	2	11/12/09	Y
EG-22-D-8222	SDS Feed System P&ID	3	12/14/09	Y
EG-22-D-8223	Waste Feed System P&ID	3	12/14/09	Y
EG-22-D-8227	PAS Blowdown Storage P&ID	2	11/24/09	Y
EG-22-D-8228	PAS Blowdown Unloading/Decon Loading P&ID	2	11/20/09	Y
EG-22-F-8210 Sht 1-2	GA TC Glovebox Processing	2	12/18/09	Y
EG-22-F-8211 Sht 1-2	Lewisite TC Glovebox Processing	2	12/18/09	Y
EG-22-G-8204	General Arrangement Plan	2	12/10/09	Y
EG-22-H-8202 Sht 1-3	HVAC P&ID	2	12/12/09	Y

14.9.10 Waste Throughput
14.9.11 Inspection
14.9.12 Closure
14.9.13 Mitigative Design and Operating Standards

14.10 ATLIC Ton Container Rinse and Drain Glove-box

14.10.1. Equipment Installations
14.10.2. Physical Characteristics
14.10.3. Dimensions and Location
14.10.4. Conveyors
14.10.5. Gates
14.10.6. Pumps and Transfer Lines
14.10.7. Sump Pump
14.10.8. Tanks and Containers
14.10.9. Feed System
14.10.10. Instrumentation
14.10.11. Electrical System
14.10.12. Heating Ventilation and Air Conditioning (HVAC) System
14.10.13. Fire Protection
14.10.14. Alarm and Communication System
14.10.15. General System Operations
14.10.16. System Startup
14.10.17. Interlocks
14.10.18. System Shutdown
14.10.19. Monitoring Procedures
14.10.20. Waste Identification
14.10.21. Waste Throughput
14.10.22. Inspection
14.10.23. Closure
14.10.24. Mitigative Design and Operating Standards

List of Tables

14-2-1 Reserved
14-3-1 List of Bulk Drain Station Sensors and Critical Interlocks
14-4-1 Maximum Explosive Weight in Explosive Containment Room
14-4-2 Projectile/Mortar Disassembly Machine Sensors
14-5-1 Summary of Multipurpose Demilitarization Machine and Pick and Place Sensors
14-5-2 Multipurpose Demilitarization Machine, Pick and Place Critical Sensors and Interlocks
14-6-1 Reserved

14.9.13.7.1. Emissions to air of organic compounds from the Autoclave are controlled using fixed-bed carbon filter system. The carbon filter system is shared with the DVS/DVSSR treatment units. See 14.8.1.1.3 for more description.

14.9.13.8. Operating Standards

14.9.13.8.1. The operating standards applicable for Autoclave operations are specified in Module VIII of this permit.

14.9.13.9. Site Hydrologic Conditions

14.9.13.9.1. A summary of site hydrologic conditions is given in Attachment 1 (Facility Description).

14.9.13.10. Migration of Waste Constituents

14.9.13.10.1. The migration of waste constituents is controlled by the use of the fixed bed carbon filter system that captures gases vented from Autoclave operations, the sealed floor of Igloo 1631 and the enclosed space created by placing the Autoclave inside the igloo that prevents waste constituents from migrating to ground water, or being released to the environment during Autoclave loading and unloading operations.

14.9.13.10.2. Releases to the environment while loading treated wastes into the roll-off are controlled by the use of waste bin liners that prevent treated waste from being spilled during roll-off loading operations and by the ACAMS results associated with each batch of Autoclave-treated waste.

14.10 ATLIC Ton Container Rinse and Drain Glove-boxes

14.10.1 Physical Characteristics

14.10.1.1. Unlike the TOCDF which uses the Bulk Drain Stations to first punch holes in ton container and then drain their chemical agent fill and then uses the Metals Parts Furnace to decontaminate the drained ton containers by thermal treatment, the ATLIC will use glove-boxes equipped with a series of value which are connected to supply and receiving tanks to drain the ton container agent fills and decontaminate the ton container by partially filling, rotating, and draining them with a series of decontamination solutions, acid solutions, and water.

14.10.1.2. Ton containers treated at the ATLIC are placed into one of two Glove-boxes which are used to control chemical agent emissions and to contain agent and hazardous waste releases and drips that may occur during the connecting and disconnecting of fill and drain lines and the opening and closing of the ton container valves.

14.10.2. Equipment Installation

14.10.2.1. Prior to initiation of hazardous waste operation activities at the ATLIC, the incinerator and Pollution Abatement System (PAS), the ATLIC HVAC filtration system, hazardous waste storage and treatment tanks, and Subpart X treatment units, to include the glove boxes, their design and installation will have been verified through the Facility Construction Certification (FCC) documentation as required by Condition I.S. This Certification attests that the equipment has been constructed and installed in accordance

with the equipment's design specification and drawings.

14.10.3 Dimensions and Location

14.10.3.1. The two glove-boxes are identical and identified as Glove-box 8501 and Glove-box 8502. The dimensions of each glove-box are 9.7 feet long by 4.3 feet high by 4.5 feet wide. Installation is in the ATLIC -Processing Bay located in Igloo 1639 of Area 10.

14.10.4. Conveyors

14.10.4.1. There are no conveyors associated with the ATLIC glove-boxes. Ton containers are moved into and out of the glove-boxes by being placed on a cart referred to as a "transfer table". The ton container is manually moved from the transfer table and placed upon roller within the glove-box. The rollers are used during the rinse processing step to rotate the ton container which allows for its entire interior surface to be contacted with the different rinse solutions.

14.10.5 Gates

14.10.5.1. There are no automated gates associated with the ATLIC glove-boxes. Each glove-box is equipped with an access door to allow ton containers to be placed in and removed from the glove-box, and small air-locks to allow tools and sampling equipment be moved into and out of the glove-box.

14.10.6. Pumps and Transfer Lines

14.10.6.1. There are numerous pumps and transfer lines associated with the glove-boxes. There are two pumps available to drain Agent GA from the ton containers and transfer this agent directly to the ATLIC primary combustion chamber, a pump to drain spent decontamination solution from GA ton containers and water from rinsed out GA, Lewisite , and "Transparency" ton containers and transfer the solution to a storage tank in the ATLIC Toxic Area, a pump to drain Lewisite from ton container and transfer it to a storage tank in the ATLIC Toxic Area, and a pump to drain Nitric Acid from rinsed Lewisite and "Transparency" ton containers and transfer it to a storage tanks located in the ATLIC Toxic Area. Each of these pumps services both glove-boxes.

14.10.6.2. The drained agents and rinse solutions are directed to the primary combustion chamber or dedicated hazardous waste storage and treatment tanks by manually adjusted value line-ups. Each glove-box has four separate transfer lines running from the exterior of the glove-box to the pumps referenced in the previous paragraph. The pumps are located in the ATLIC Toxic Area where secondary containment is provided. The sections of transfer lines spanning the distance between the exterior of each glove-box to the wall of the Toxic Area are doubled walled.

14.10.7. Sump Pump

14.10.7.1. There are no sump pumps associated with the glove-box hazardous waste management units.

14.10.8. Tanks and Containers

14.10.8.1. The glove-boxes are used to enclose Agent GA, Lewisite, and "Transparency" ton

container while there are drained and rinsed. Each glove-box has valves and transfer lines to allow for the draining of chemical agent, and the filling and draining of decontamination and rinse solutions to include sodium hydroxide, and Nitric Acid solutions and water. The valves and transfer lines used to convey solutions into the ton containers and the tanks used to store these materials are not discussed in this section because these material are products.

14.10.8.1. The tanks to which the spent decontamination and rinse solutions are transferred are located in the ATLIC Toxic Area. These permitted hazard waste storage and treatment tanks are identified in Module IV and Attachment 16 of this permit.

14.10.9. Feed System

14.10.9.1. Ton containers are manually positioned into each glove-box by use of the Transfer Table and roller within the glove-box.

14.10.10. Instrumentation

14.10.10.1. Instrumentation associated with each glove-box includes pressure differential indicating transmitters which provide both a local and remote reading of the differential pressure between the interior of the glove-box and the ATLIC Processing Area. There are also mass flow meters which provide a local reading of the mass of decontamination, Nitric Acid solutions, or water added to the ton containers for decontamination and rinsing.

14.10.10.2. For Agent GA processing, there are also solenoid switches that can activate interlock feeds to the incinerator and hazardous waste storage and treatment tanks to prevent both glove-boxes from transferring the same agent decontamination or rinse solution to the incinerator or tanks at the same time.

14.10.10.3 For Agent Lewisite processing, there are solenoid switches that prevent the rinse solutions from being transferred between the two glove-boxes but have no impact on incinerator feed since the agent is transferred to a holding tank rather than fed directly from the glove-box.

14.10.11. Electrical System

14.10.11.1. The electrical system powers all the ATLIC systems, ATLIC PAS, the scrubber brine chiller, igloo lighting, agent monitors, igloo air handlers, the carbon filter system Induced Draft (ID) fans, incinerator instrumentation, and the PLC that controls facility operations. The electrical system also power a motor within each glove-box which is used to rotate ton containers after then have been filled at least half way with decontamination and rinse solutions.

14.10.11.2. Commercial power is provided. An uninterruptable power supply (UPS) is provided to supply power to critical systems for up to 45 minutes, after which power is restored by one of two diesel stand-by generators. Attachment 9 (Contingency Plan) provides detailed information regarding the backup power systems.

14.10.12. Heating, Ventilation, and Air Conditioning System (HVAC)

14.10.12.1 Emissions from the each glove-box are controlled by the ATLIC HVAC Carbon Filter System. During draining and rinsing operation the glove-boxes are operated under a

negative pressure relative to the ATLIC Processing Bay. The negative pressure is created by adjusting dampers in the duct that connects each glove-box to ATLIC HVAC system, which ultimately vents to two of three activated carbon filters. The ATLIC HVAC supports the igloo and the enclosure connected to the igloo that comprises the ATLIC.

14.10.12.2. Each carbon filter contains a bank of pre-filters, followed by a bank of High Efficiency Particulate Air (HEPA) filters, followed by three banks of activated carbon filters, followed finally by an additional bank of HEPA filters. Two of the three available filter units are on-line from the time agent operations begin until the facility is decontaminated. The exhaust gas flow rate for a single filter unit is approximately 6,000 cubic feet per minute.

14.10.13. Fire Protection System

14.10.13.1. See Attachment 9, paragraphs 9.1.4.9 through 9.1.4.14

14.10.14. Alarm and Communications Systems

14.10.14.1. Igloo 1639 and the attached ATLIC Environmental Control System (encloses the PAS) are equipped with a communication system that is similar to that of the TOCDF site to include local area network phone service and Public Announcement (PA) system, hand-held radios and cell phones. These systems are available to alert employees of emergencies or to summon assistance.

14.10.15. General System Operation

14.10.15.1. The draining and rinsing of TCs is performed in the glove-boxes. Glove-box operations are performed manually by an operator who can reach into the glove-box by inserting their hands into gloves that penetrate the two width-wide ends of each glove-box. Each process step is initiated by a local operator. Process steps are described below and essentially involve the realignment of valves to either drain or fill the TC being processed.

14.10.15.2. The processing of GA TCs differs slightly from that of L TCs. GA TCs are processed by placing the TC into the glove-box and rotating it so the two fill and drain valves are aligned vertically. Quick connect couplers are used to attach the drain and fill lines within the glove-box to the ton container valves. The ton container valves are then opened.

14.10.15.3. Valves within each glove-box can be arrayed to transfer the contents of each TC to the ATLIC PCC, the Lewisite Agent Collection Tank, the Spent Decontamination Tank, or to one of two Nitric Acid Holding Tanks. Valves located outside each glove-box can be arrayed to fill ton containers which have been drained of their agent fill with decontamination solution, Nitric Acid Solution, or water.

14.10.15.4. A process air line is attached to the upper valve, and drain line is attached to the lower valve. The connections are made using specially designed shutoff quick-connect couplers. The valves are then opened, the air added to the TC through the top valve both prevents a vacuum from forming in the TC as the agent is removed and provides additional pressure to assist in draining the agent. The GA is fed from the TC directly to the LIC PCC.

14.10.15.5. If plugged drain and fill valve are encountered, the same air line can be used to unplug the valve(s). If the valve(s) cannot be unplugged using compressed air, a drain lance can be inserted into the TC by removing one of the "blow-out" plugs which are located end of the TC opposite the drain and fill valves.

14.10.15.6. Once emptied of the agent fill, the GA TC is back-flushed with a sodium hydroxide (NaOH) based decontamination solution. Sufficient decontamination solution is added through both drain and fills valves to fill the TC more than half way with this solution. The TC is then rotated for a predetermined period of time. The rotation of the TC ensures that the solution contacts all of the TCs' interior surfaces. The spent decon solution is then drained from the TC to the SDS Tank located in the ATLIC Toxic Area. Once emptied of spent decon, the TC is rinsed by filling it more than halfway with water, rotating the TC and draining the water. The water rinse process is repeated at least three times. A sample is collected from the final water rinse and analyzed for agent content. TCs are transferred to off-site Subtitle C Treatment, Storage, and Disposal Facilities (TSDF) when the results of the samples collected from the third (or additional water rinses if required) show an agent concentration of less than the Waste Control Limit (WCL) for the agent being processed. The WCL for Agent GA is 20 parts per billion (ppb). The spent decon and water generated from rinsing GA TCs is transferred to the SDS Tank and treated in the LIC SCC.

14.10.15.7. Agent L TCs are prepared for draining in the same manner as the GA TCs; the difference in how GA and L TCs are processed involves where the drained agent is transferred and how the interior of the emptied TCs are rinsed and decontaminated.

14.10.15.8. Agent L TCs are drained in the same manner as GA TCs. The drained L however is transferred from the TC to the Lewisite Agent Holding Tank located in the ATLIC Toxic Area. The L accumulates in the tank where it is mixed and sampled prior to being fed to the LIC PCC. Once drained, L TCs are filled more than halfway with a 3 Molar (M) nitric acid solution. The TC is then rotated for a period of time. The resulting spent nitric acid is transferred to one of two Nitric Acid Holding Tanks, also located in the ATLIC Toxic Area, where it accumulates until it is sampled and screened for agent concentration. 3 M nitric acid or greater is added to the tank's contents to treat the L to a concentration of less than the WCL for L, which is 200 ppb. When the concentration in the Spent Nitric Acid is less than the WCL the tank's contents are transferred to a 90-day accumulation tank located in the PAS Enclosure where it accumulates pending off-site transfer to a deep well injection facility.

14.10.15.9. Once the L TC is drained of the spent nitric acid, the L TCs are filled more than halfway with water, rotated, and then drained. This process is repeated at least three times. A sample is collected from the final water rinse and analyzed for agent content. TCs are transferred to an off-site Subtitle C Treatment, TSDF) when the results of the samples collected from the third or final water rinse show an agent concentration of less than the Waste Control Limit (WCL). The water generated from rinsing L TCs is transferred to the SDS Tank and treated in the LIC SCC.

14.10.15.10. Transparency TCs that are determined to be contaminated with L through sample collection or through headspace monitoring results, should the TC be empty, are processed in the same manner as L TCs.

14.10.15.11. Transparency TCs that are determined to not be contaminated with L through sample collection or through headspace monitoring results, should the TC be empty, are undergo three water rinses and are not first rinsed with nitric acid.

14.10.15.12. After the series of water rinses is completed, TCs processed at the ATLIC are placed into a permitted container storage HWMU. At the completion of TC rinsing and draining operations, the glove-boxes are removed from the ATLIC Processing Bay to make room for the TC cutting machine which will cut the decontaminated TCs in half after which the TCs are transfer to an off-site Subtitle C TSDF.

14.10.16. System Startup

14.10.16.1. There are no automated features associated with glove-box operations, all operations are manual and performed by a local operator. Operations begin with a TC being placed into a glove-box. The glove-box is sealed and a negative pressure is established between the interior of the glove-box and the ATLIC Processing Bay.

14.10.17. Interlocks

14.10.17.1. Interlocks associated with the glove-boxes are activated by solenoid switches that sense valve positions. The interlocks are included to prevent both glove-boxes from transferring agent, decontamination, or rinse solutions to the same tank at the same time. This prevents the accidental and unintended filling of a TC in one glove-box by the TC in the other glove-box.

14.10.18. System Shutdown (Normal)

14.10.18.1. There are no automated features associated with glove-box operations, all operations are manual and performed by a local operator. Decontaminated TCs are not removed from a glove-box until the interior of the glove-box has been monitored and agent concentrations have been determined to be less than 0.5 Vapor Screening Limit (VSL). Once the TCs are removed there is no need to maintain a negative pressure within the glove-box.

14.10.19. Monitoring Procedures

14.10.19.1. A sample analysis is used to determine when a TCs is sufficiently decontaminated to assign the F999 waste code.

14.10.19.2. First, the processing of TC in a glove-box is determined complete based on analytical results obtained from rinsate sample analysis. Each TC undergoes rinses with decontamination solutions, and/or oxidizers (i.e., Nitric Acid solution). After these are completed, each TC undergoes at least three water rinses. A sample of rinse water from the final water rinse is collected and screened for agent concentration relative to the Waste Control Limit (WCL). The interior space of TCs is determined to be sufficiently decontaminated if the results of agent screen conducted on a sample of the third ,or final, water rinse are below the WCL which is 20 parts per billion (ppb) for Agent GA and 200 ppb for Lewisite. TCs having third (or final) rinse water sample agent screen results of less than the WCL are characterized as F999 waste; other waste codes may apply.

14.10.19.34. TCs are removed from the glove-box based on results obtained from the monitoring of the interior of the glove-box. For GA TCs, glove-box monitoring results of $\leq$ 0.2 VSL allow for the TC to be removed from the glove-box. For Lewisite TCs, glove-box monitoring results of $\leq$ 4.0 VSL allow for the TC to be removed from the glove-box.

14.10.20. Waste Identification

14.10.20.1. The wastes that will be treated in the ATLIC glove-boxes (the treatment being the draining and decontamination of chemical agent filled ton containers and empty ton container contaminated with Lewisite) are:

- Four ton container partially filled with Agent GA having an approximate total weight of 4,000 pounds of chemical agent. The waste codes applicable to Agent GA are P999, D004, D007, D008, and D021.

- Ten ton containers filled with Lewisite having an approximate total weight of 25,000 pounds of chemical agent. The waste codes applicable to Lewisite are P999, D004, D007, D008, D009 and D010.

- Up to ten empty ton containers, which are referred to as "Transparency Ton Containers". These TCs have been determined to be empty. Headspace samples were collected from these TCs because there were no solid or liquid materials to sample. Transparency TCs that were determined to be contaminated with Lewisite based on the analytical results of the headspace samples are treated at the ATLIC in the same manner as Lewisite TCs.

14.10.21. Waste Throughput

14.10.21.1. The waste throughput rate varies depending on the amount of agent requiring draining and the number of rinses required to decontaminate the interior (and exterior if necessary) of the ton container. Note ton containers are under engineering controls the entire time they are within a glove-box. Each glove-box vents to the ATLIC carbon filter absorber equipped HVAC system.

14.10.22. Inspection

14.10.22.1. Each ATLIC Glove-box system, including ancillary equipment will be inspected as specified in Attachment 5.

14.10.23. Closure

14.10.23.1 Partial Closure

14.10.23.1.1. Partial closure does not apply to the ATLIC. Following final closure of the ATLIC the TOCDF will submit in writing to the Executive Secretary a request for partial closure of Igloo 1639. After approval of partial closure, Igloo 1639 will be turned back over to DCD Area 10 for final closure.

14.10.23.2. Final Closure

14.10.23.2.1. Final closure of the ATLIC glove-boxes will be performed in compliance with R315-8-7 and this permit. Final closure of Igloo 1639 will be accomplished via DCD Area 10 Closure Plan.

14.10.24. Mitigative Design and Operating Standards

14.10.24.1. The following section describes waste constituent releases to the environment (air, soil,

and water), the potential impacts of such releases, and the location features of the ATLIC that will mitigate these releases.

14.10.24.2 Containment System

14.10.24.2.1. The glove-box provides secondary containment for the ton container being treated. The sealed design of the glove-box controls both air emissions and contains any release that may occur when the transfer lines which are detached to the ton container valves are removed.

14.10.24.2.2. Releases of agent caused from detaching the treated ton container from the transfer lines are controlled by the use of quick connect couplers which are designed to seal the transfer lines when they are disconnected from the emptied ton container.

14.10.24.3. Site Air Conditions

14.10.24.3.1. See Section 14.3.7.4.

14.10.24.4. Topography

14.10.24.4.1. See Section 14.3.7.5.

14.10.24.5. Meteorological and Atmospheric Conditions

14.10.24.5.1. See Section 14.3.7.6.

14.10.24.6. Air Quality

14.10.24.6.1. See Section 14.3.7.7.

14.10.24.7. Prevention of Air Emissions

14.10.24.7.1. Air emissions resulting from glove-box ton container draining and rinsing operations are controlled by the ATLIC HVAC filter system to which each glove-box is directly connected.

14.10.24.7.2. A negative pressure is maintained within the glove-box (relative to the ATLIC Processing Bay) from the time a ton container is placed in each glove-box until the time the ton container is decontaminated and removed from the glove-box.

14.10.24.8. Operating Standards

14.10.24.8.1. The operating standards applicable for ATLIC glove-box operations are specified in Module VIII of this permit.

14.10.24.9. Site Hydrologic Conditions

14.10.24.9.1. A summary of site hydrologic conditions is given in Attachment 1 (Facility Description).

14.10.24.10. Migration of Waste Constituents

14.10.24.10.1. The migration of waste constituents to ground and surface waters is controlled by the

sealed design of each glove-box which provides secondary containment for the ton container being rinsed and drained. Additionally each glove-box is located within Igloo 1639, the base of which is coated with an epoxy coating that provides an impermeable base.

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List of Acronyms

ACS	Agent Collection System
AQS	Agent Quantification System
ATLIC	Area 10 Liquid Incinerator
BDS	Bulk Drain Station
BRA	Brine Reduction Area
CRO	Control Room Operator
DFS	Deactivation Furnace System
ECR	Explosive Containment Room
ECV	Explosive Containment Room Vestibule
ICU	Intermittent Containment Unit
LIC	Liquid Incinerator
MDB	Munitions Demilitarization Building
MDM	Multipurpose Demilitarization Machine
MPB	Munition Processing Bay
MPF	Metal Parts Furnace
NFPA	National Fire Protection Association
PAS	Pollution Abatement System
PDARS	Process Data Acquisition and Recording System
PLC	Programmable Logic Controller
RCRA	Resource Conservation Recovery Act
SDS	Spent Decontamination System
TMA	Toxic Maintenance Area
TOCDF	Tooele Chemical Agent Disposal Facility
TOX	Toxic Cubicle
TSDF	Treatment Storage and Disposal Facility

16.1 INTRODUCTION

16.1.1 Tooele Chemical Agent Disposal Facility (TOCDF) manages liquid hazardous wastes in three different tank systems:

16.1.1.1 Agent Collection System (ACS): Consisting of ACS-TANK-101, ACS-TANK-102 and ancillary equipment (See Table 16-1 for design specifications). These tanks receive and accumulate the chemical agent that is drained from the munitions and bulk containers processed at the TOCDF. The collected agent is sent from the ACS tanks to the primary chamber of the Liquid Incinerators.

16.1.1.2 Spent Decontamination System (SDS): Consisting of SDS-TANK-101, SDS-TANK-102, SDS-TANK-103, and ancillary equipment (See Table 16-2 for design specifications). These tanks receive and accumulate spent decontamination solution generated within the Munitions Demilitarization Building (MDB) during maintenance activities. As solutions are sprayed over the area or equipment being decontaminated, spent solutions collect in double lined sumps (referred to as Intermittent Collection Units [ICU] because of the management constraints placed upon them through RCRA Permit conditions). From the ICU the spent decontamination solution is pumped to the SDS tanks. Spent decontamination solutions is sent from the SDS Tanks to the secondary chamber of the Liquid Incinerators. One SDS tank is left empty when chemical agent is being processed inside the MDB and is to be used as storage in case there is an agent spill.

16.1.1.3 Brine Reduction Area (BRA) Tank System: Consisting of BRA-TANK-101, BRA-TANK-102, BRA-TANK-201, BRA-TANK-202, and ancillary equipment (See Table 16-3 for design specifications). The BRA tanks receive and accumulate spent scrubber brines generated by the Pollution Abatement Systems associated with the Liquid Incinerators, Metal Parts Furnace, and Deactivation Furnace System. From the BRA tanks, spent scrubber brine is either treated onsite in the BRA or transferred to tankers for transport to an offsite Treatment Storage and Disposal Facility (TSDF).

16.1.2 ATLIC manages liquid hazardous wastes in three different tank systems:

16.1.2.1 Lewisite Collection System (LCS): Consisting of two tanks, LCS-TANK-8511 and -8534, and ancillary equipment (See Table 16-4 for design specifications). LCS-TANK-8511 receives and accumulates the chemical agent that is drained from Lewisite ton containers processed through the ATLIC glove-boxes. The collected agent is sent from the LCS tanks to the primary chamber of the ATLIC LIC. LCS-TANK-8534 is maintained empty and used for the collection of major spills that occur in the ATLIC.

16.1.2.2 Spent Decontamination System (SDS): Consisting of one SDS tank, SDS-TANK-8523, and ancillary equipment (See Table 16-5 for design specifications). This tank receives and accumulates spent decontamination solution rinse water generated from the processing of GA ton containers, rinse water generated from the processing of Lewisite ton containers, and spent decontamination solution generated from maintenance activities within the ATLIC. Sumps are located in the ATLIC Toxic Area Room, the ATLIC LIC Room, the Level B, and Level A Airlocks. Each area's floor is sloped such that the spent decon solution is collected in below-grade sumps constructed of concrete with a steel pan placed within the concrete sump. The steel pan is lined

with a protective liner compatible with the materials that are in the area. From these sumps (or ICUs) the spent decontamination solution is pumped to the SDS tanks, and from the tanks to the secondary chamber of the Liquid Incinerator.

16.1.2.3Nitric Acid Holding Tank System (NSF): Consisting of two tanks, NSF-TANK-8514 and LCS-TANK-8516, and ancillary equipment (See Table 16-6 for design specifications). These tanks receive and accumulate the corrosive and high metals content waste stream generated from the rinsing out of L TCs.

16.1.2.4 Brine Holding Tank System: The three brine holding tanks, which receive spent scrubber brines generated by the ATLIC Pollution Abatement System, are managed as less than 90-day accumulation tanks. The spent scrubber brine is transferred to tankers for transport to an offsite Treatment Storage and Disposal Facility (TSDF).

16.1.2.5. Less Than (<) Waste Control Limit Spent Nitric Acid Tank: Consisting of one holding tank which receives Spent Nitric Acid. This tank is managed as a less than 90-day accumulation tank. Note only Spent Nitric Acid having a Lewisite concentration of less than the Waste Control Limit of 200 parts per billion (ppb) is transferred to this tank.

16.2 EXTERNAL CORROSION PROTECTION [40 CFR 264.192(a)(3) and 270.16(e)]

16.2.1 With the exception of the TOCDF BRA tanks, which are located outside on concrete pads, all of the hazardous waste tanks at TOCDF are located inside and are not externally exposed to soil or precipitation. The exterior of the BRA tanks is painted for protection against atmospheric conditions. Flat-bottomed tanks that are permitted to store hazardous waste are supported above their respective concrete pads to allow for leak detection. All tanks are painted for protection from rusting and atmospheric conditions. Painting specifications and other information on external corrosion protection are maintained at the site, and are available for inspection upon request. The integrity of the tank systems is ensured by the corrosion protection coatings and inspections. The tanks are located above ground and are set on concrete pads or are elevated to assist in visual inspection.

16.2.2 Specifically, the TOCDF ACS tanks are constructed of carbon steel and coated with an epoxy paint system on the outside surface. The TOCDF SDS tanks are carbon steel tanks coated with an epoxy paint system on the outside surface. The TOCDF BRA tanks are carbon steel tanks lined with modified epoxy and coated with the manufacturer's standard coating. The TOCDF ACS-TANK-102 and the SDS tanks are supported above the floor on epoxy-coated steel legs. ACS-TANK-101 is supported above the floor by steel supports attached to the first floor platform. The legs are supported above the floor on concrete pads. Small spills are decontaminated and flushed with water as quickly as practical. Any spills and wash down liquids will drain away from the tanks and support legs to the sumps. Because the tanks and steel support legs are not normally exposed to liquids, exterior corrosion measures, such as cathodic protection, are not necessary. The BRA tanks are supported above ground on a concrete pad. Spills are handled in the manner previously described.

16.2.3. All hazardous waste storage and treatment tanks located at the ATLIC are within the Area 10 igloo which houses the ATLIC or within the Environmental Enclosure that is attached to the igloo. All ATLIC permitted hazardous waste storage and treatment tanks are elevated above the floor by steel supports. LCS-Tank-8511 is the only permitted

hazardous waste that is made of carbon steel. The exterior of this tank is painted with an epoxy coating. All other ATLIC storage and treatment tanks are made of stainless steel.

16.3 DESCRIPTIONS OF FEED SYSTEMS, SAFETY CUTOFF, BYPASS SYSTEMS, AND PRESSURE CONTROL [40 CFR 264.194(b)(2) and 270.16(c)]

16.3.1 The following paragraphs discuss feed systems, safety cutoff, bypass systems and pressure control for the TOCDF and ATLIC tank systems. General information that is applicable to more than one system is given, as well as specific information for the TOCDF ACS, SDS, and BRA tanks, and the ALIC LCS, SDS, and NSF tanks. These controls are described further in the Piping and Instrumentation Diagram drawings that are included in Attachment 11 (General Facility Drawings) of this Permit.

16.3.2 Common Tank Components

16.3.2.1 The following description applies to the two TOCDF tanks for agent collection, ACS-TANK-101 and -102; the three tanks for spent decontamination solution, SDS-TANK-101, -102, and -103; and the four tanks for brine, BRA-TANK-101, -102, -201, and -202.

16.3.2.2 All of the tanks have a level transmitter that provides both low- and high-level alarms to the Process Data Acquisition and Recording System (PDARS). A listing of the instruments for the tanks, piping, and valving follows:

16.3.2.2.1 Tank level transmitters[1] indicating an alarm at low-level and high-level.

16.3.2.2.2 Tank level switches indicating an alarm at low-low level and high-high level.

16.3.2.2.3 Valve position switches.

16.3.2.2.4 Strainer differential pressure transmitters are part of the Agent and Spent Decontamination Tank Systems.

16.3.2.2.5 Liquid flow control.

16.3.2.2.6 Liquid flow pressure indicator and transmitter.

16.3.2.2.7 Mass flow measurement and transmitter.

16.3.2.3 All TOCDF tanks are at atmospheric pressure and pressure is not measured. Temperature of liquids is ambient and is not measured in the ACS and SDS tanks. Temperature is measured in the BRA tanks to provide input to the temperature compensating level indicators. Flows to the tanks are not measured. Liquid level monitoring and alarms in the Agent Collection and Spent Decontamination Tanks are provided by either an ultrasonic level transmitter or a radar level transmitter.

16.3.3 TOCDF Agent Collection Tank System

16.3.3.1 Reserved

1 NOTE: Tank transmitters indicate low and high level alarms while tank switches indicate low-low and high-high levels.

16.3.3.2 Agent collected from bulk munitions at the TOCDF bulk drain stations is routed to ACS-TANKS-101 or 102 via an unpocketed line to agent pumps ACS-PUMP-114 and 115. Accompanying the drain process is a bubbler type level measurement system that indicates the drain status of the munition when the maximum amount of agent is drained. The drain/bubbler probe is purged with air to remove any residual agent before retraction from the munition. The amount of agent removed from the munition is quantified by weighing the munition before and after the draining operation is completed.

16.3.3.3 Three air-operated diaphragm agent pumps, ACS-PUMP-105, 106, and 107, pump agent drained from the munitions to either TOCDF ACS-TANK-101 or 102. Operation of these agent pump(s) induces a vacuum in the AQS system that is controlled by opening and closing isolation valves. The vacuum enables the draining of agent from the munitions. Accompanying the drain process is a bubbler type level measurement system that indicates when the drain process is complete.

16.3.3.4 The TOCDF ACS-TANK-101 and ACS-TANK-102, the agent holding tanks, are the primary tanks for demilitarization operations. When a tank has been selected to fill and the system is placed in automatic, the inlet valve is opened and draining is permitted to proceed. In order to allow draining of agent to be initiated, an inlet valve must be open and the corresponding tank cannot be at a high level (corresponding to the maximum allowable volume of 500 gallons for ACS-TANK-101 and 1130 gallons for ACS-TANK-102). *If these conditions do not exist for one of the tanks, no additional munitions shall* be drained. Should both TOCDF tanks reach their high-high levels, all draining activities shall automatically cease. An alarm shall sound in the control room if either tank reaches its high-high level. Once draining activities are discontinued because of lack of storage volume, demilitarization processing shall not begin until one of the tanks has sufficient capacity to collect the drained agent. When the tank is filled to a preset level, a high-level alarm sounds in the control room to alert the operator. If the level in the tank continues to rise until a high-high level is reached, the control system automatically closes the inlet valve to the tank and stops draining operations.

16.3.3.5 The venting of TOCDF agent tanks is controlled by pressure differentials without the need for manual switching of vents. Vapors from the agent tanks escape through a conservation breather vent on TOCDF ACS-TANK-102, still within the TOX. The TOX is a level A area and is maintained at negative pressure. Vapors passing through the conservation breather vent will combine with TOX ventilation air and be drawn through the exhaust carbon filter units.

16.3.3.6 In the event of a rapid pressure buildup, such as during a fire, the vent is sized large enough to handle the expected agent vaporization rate. A rupture disk, rated at 15 psig and vented to the TOX, is installed on TOCDF ACS-TANK-101. The rupture disk is located in a nozzle.

16.3.3.7 Adjacent to the rupture disk, in a separate nozzle, is a vacuum relief valve set at 10 psia. If agent is pumped from the tank at a rate faster than it is supplied to the tank by the drain station, a vacuum in the tank may develop. This vacuum relief valve allows air to pass into the tank from the TOX. It does not vent air out of the agent tanks.

16.3.3.8 Downstream of the strainers, the discharge lines from the TOCDF ACS-TANK-101 and ACS-TANK-102 combine in a common line to the agent feed pump header. Two Liquid Incinerator (LIC) agent feed pumps and a spare are provided. Each of the operating agent feed pumps has a flow control loop that recirculates agent from the pump discharge line to the pump inlet header. During normal operation, agent will be continuously recirculated in the flow control loops since the design flow rate is lower than the rated capacity of the pumps. Pressure safety valves are provided with each pump to recirculate agent from the discharge to the pump inlet if the pressure at the pump discharge reaches a specified setpoint. These pressure safety valves protect the pumps in case a downstream control or manual valve is closed. When an Automatic Waste Feed Cut-Off occurs, the agent feed pump providing feed to the effected LIC is shut down and a shutoff valve in the agent line is closed.

16.3.3.9 A mass flow element, pressure-indicating transmitter, low pressure switch, and shutoff valve are located on each agent line prior to penetration into the TOCDF primary LIC room. These instruments indicate low flow or low pressure in the agent line. If low flow is sensed in the agent line downstream of the agent pump, an alarm will sound in the control room and the agent line shutoff valve is closed. When low pressure occurs in the agent line an alarm will sound in the control room, the online pump is shut down and the spare pump is started. If a low-low pressure is sensed in this line, the corresponding agent feed pump is stopped.

16.3.3.10 A low pressure switch and two tight shutoff valves are also located on the agent line inside the TOCDF primary LIC Room. If a low pressure is sensed in the agent line upstream of the primary LIC, an alarm will sound in the control room and a signal is sent to the corresponding LIC flame safety shutdown system. In addition, the shutoff valves are closed, thereby stopping flow to the incinerator. The length of agent piping from the last shutoff valve to the incinerator inlet (where the agent tank system terminates) is minimized.

16.3.4 TOCDF Spent Decontamination Tank System

16.3.4.1 Each SDS tank has one vent to the SDS Room in order to maintain the tank at atmospheric pressure. To allow for initiation of spent decontamination solution pumping, an inlet valve to a SDS tank must be open and the tank cannot be at high level. If these conditions do not exist, pumping is not initiated. When a tank has been selected to fill and the system is placed on automatic, the inlet valve is opened and pumping is permitted to progress.

16.3.4.2 When the tank is filled to a preset level, the system switches automatically to the second tank unless that tank indicates a maximum capacity level or the contents of the second tank are being fed to the secondary chamber of one of the LICs. If the second tank indicates a high maximum capacity level, or the contents of the second tank are being fed to one of the LICs, the inlet valves to both filled tanks are closed and pumping operations are halted. In addition to an alarm sounding during this condition, the control system automatically closes the inlet valve to the tank and stops pumping operations. The third tank shall be held in reserve to provide emergency storage in case there is an agent spill.

16.3.5 TOCDF Brine Reduction Area Tank System

16.3.5.1 The TOCDF BRA tank system is composed of four brine storage tanks. Each brine storage tank has one inlet for feed from the Pollution Abatement Systems (PASs).

16.3.5.2 Startup of the TOCDF incinerators (both LICs, Deactivation Furnace System (DFS), and Metal Parts Furnace (MPF) and subsequent pumping of the brine from its PAS to the brine surge tanks require that an outlet valve be closed (draining from tank) and that the tank is not at high-high level. This will satisfy the interlock and the inlet valve may be opened. When a tank has been selected to fill and the system is placed on automatic, the inlet valve is opened, and pumping is permitted to progress. When the tank is filled to the high level, the programmable logic controller (PLC) closes the inlet valve as well as annunciates this condition to the Control Room Operator (CRO). This high level alarm prompts the CRO to prepare the next tank to be filled. This condition (closed inlet valve) can be bypassed by the CRO and filling can resume until the high-high level is reached. The high-high level is hard-wired and cannot be bypassed by the CRO. When an inlet valve closes, the PASs have approximately 10 minutes of surge capacity within which the CRO must select another brine tank to fill. If this operation is not successful (e.g., the remaining three BRA tanks indicate high-high level, or two tanks indicate high-high level and one is draining), the level will continue to rise until it reaches the high-high level on the tank selected. At this point, an alarm sounds and an interlock stops feed to the TOCDF MPF, DFS, and both LICs.

16.3.5.3 *If all of the BRA tanks are at high-high level, the LICs are immediately placed in an idle* state. This procedure shuts off the agent and spent decontamination solution feeds to both LICs, reduces the production of brine, but keeps the LIC system in an idle condition for an easy restart. Idle conditions are continued until the levels in the BRA tanks are such that the LICs can resume operation. During LIC idle conditions, brine generation is minimized.

16.3.5.4 The BRA tanks are protected from overfilling by level switches that close the brine inlet valves upon reaching high-high level. In the event of instrument failure, tank overflow outlets to the secondary containment system are provided.

16.3.5.5 Reserved

16.3.5.6 The TOCDF brine system also has a pump and associated piping used to load transport tankers. This piping ties into a plastic lined pipe that exits the Process Utilities Building (PUB) to the pipe rack west of the PUB. This pipe continues south in the overhead pipe rack. This pipe enters a pipe trench that goes under the double fence to a load/unload station. The brine is loaded into tankers which are transferred to an off-site TSDF for further treatment and ultimate disposal. The pipe trench is concrete lined with removable roof sections. The pipe trench floor and loading dock floor area and sump are coated with a chemical resistant coating. The plastic lined pipe is equipped with weep holes. These weep holes are connected to a common header. This header drains to a sump. If liquid is indicated in the sump an alarm is activated in the control room.

16.3.5.7 TOCDF will transport the scrubber brine to a pre-approved off-site TSDF for disposal per the TOCDF Waste Analysis Plan.

16.3.6. ATLIC Lewisite Collection Tank System (LCS)

16.3.6.1. The only chemical agent that will be managed by the LCS-Tank-8511 is agent drained from Lewisite ton containers. Note Agent GA is fed from the ton container directly to the ATLIC Primary Combustion Chamber.

16.3.6.2. The amount of Lewisite drained from each ton container is not quantified. Lewisite ton containers are determined empty of their pumpable agent fill when the compressed air used to pressurize the ton container during draining blows through the ton container drain valve and the cycling of the diaphragm pump that is used to drain the agent increases, which notes that there are no liquids remaining in the ton container to pump.

16.3.6.3. LCS-Tank-8511 is equipped with both radar type level indication transmitters (LIT) and ultrasonic level switches. The LIT are used to determine the height of the liquid column of agent stored in the tank while the level switches are used to activate level low-low (LSLL) and level high-high (LSHH) alarms. LSLL alarms stop the operation of the selected waste feed pump which is used to feed the tank's contents to the LIC Primary Combustion Chamber. LSHH alarms stop the operation of LDS-Pump-8503 which is used to transfer Lewisite from ton containers to the LCS-Tank-8511. Activation of the LSHH alarm also automatically closes the inlet valve to the tank.

16.3.6.4. The amount of Lewisite transferred to LCS-Tank-8511 is controlled from the control room. The capacity of the tank is such that the volume of a full tank is equivalent to the volume of six ton containers. The Control Room Operator can determine if there is sufficient unused volume capacity in the tank to hold the contents of the next ton container to be processed.

16.3.6.4. The LCS-Tank is operated at atmospheric pressure and the tank's vent is open to the ATLIC Toxic Area which is a Level A area. Emissions from the LCS-Tank are captured by the ATLIC Heating Ventilation and Air Conditioning (HVAC) filters which incorporate activated carbon as an adsorbing media.

16.3.6.5. A diaphragm pump (LDS-Pump-8503) is used to transfer Lewisite from the ton container to LCS-Tank-8511. The agent passes through a duplex strainer (LDS-FILT-8507) before it reaches the tank. There is a diaphragm pump available for mixing the contents of the tank; LCS-Pump-8512. Lewisite is removed from the tank and fed to the Primary Combustion Chamber of the ATLIC using variable frequency drive equipped waste feed pumps WFS-Pump-8655 or 8656. The agent passes through a basket strainer located prior to the pumps.

16.3.6.6. Major Spill Tank LCS-Tank-8534 is also included as part of the Lewisite Collection Tank System. This tank does not have any pumps associated with it. LCS-Tank-8534 can be filled and emptied by pumps located in each of the Toxic Area sumps or by the circulation pump associated with each Toxic Area tank. Each tank's piping system is equipped with a t-connection that a flexible hose can be attached. To transfer the contents of LCS-Tank-8534, a flexible hose is attached to the Major Spill Tank t-connection and to the t-connection that the spill tank's contents are to be transferred. The "destination" tank's circulation pump is then used to transfer the waste to the desired tank.

16.3.6.7. Major Spill Tank LCS-tank-8534 can be filled in the same manner that it is emptied (i.e.,

using a flexible hose, t-connections, and circulation pumps), or filled by transferring liquid that collect in the two sumps located in the Toxic Area. Each sump is equipped with a sump pump.

16.3.7. ATLIC Spent Decontamination Tank System (SDS)

16.3.7.1. The ATLIC SDS System tank, SDS-Tank-8523 is used to accumulate spent decontamination solution and rinse water generated from the processing of Agent GA ton containers, rinse water generated from processing of Lewisite and Transparency ton containers, and spent decontamination solutions generated from ATLIC maintenance activities.

16.3.7.2. SDS-Tank-8523 is equipped with both radar type level indication transmitters (LIT) and ultrasonic level switches. The LIT are used to determine the height of the liquid column of agent stored in the tank while the level switches are used to activate level low-low (LSLL) and level high-high (LSHH) alarms. LSLL alarms stop the operation of the selected waste feed pump which is used to feed the tank's contents to the LIC Secondary Combustion Chamber. LSHH alarms stop the operation of LDS-Pump-8506 which is used to transfer spent decontamination solutions and rinse waters to the SDS-Tank-8523. Activation of the LSHH alarm also automatically closes the inlet valve to the tank.

16.3.7.3. The amount of spent decontamination solution transferred to SDS-Tank-8523 is controlled from the control room. The Control Room Operator can determine if there is sufficient unused volume capacity in the tank to hold the contents of the ton container that has been rinsed.

16.3.7.4. The SDS-Tank is operated at atmospheric pressure and the tank's vent is open to the ATLIC Toxic Area which is a Level A area. Emissions from the SDS-Tank are captured by the ATLIC HVAC filters which incorporate activated carbon as an adsorbing media.

16.3.7.5. A diaphragm pump (LDS-Pump-8506) is used to transfer spent decontamination solution and rinse water from the ton containers to SDS-Tank-8523. The decontamination solution and rinse water passes through a duplex strainer (LDS-FILT-8510) before it reaches the tank. There is a diaphragm pump available for mixing the contents of the tank; SDS-Pump-8524. The tank's contents are fed to the Secondary Combustion Chamber of the ATLIC using variable frequency drive equipped spent decon feed pumps SDF-Pump-8330 or 8340. The waste feed passes through a basket strainer located prior to the pumps.

16.3.8. Nitric Acid Holding Tank System (NSF)

16.3.8.1. The Nitric Acid Holding Tanks (NSF-Tank-8514 and LCS-Tank-8516) are used to store and treat the metal laden corrosive waste steam that is generated the rinsing out of Lewisite TCs. This waste stream may contain Lewisite at concentration greater than the WCL of 200 ppb. The treatment that may occur in this tank is limited to the addition of 3 Molar (M) greater strength nitric acid to lower the Lewisite concentration to below the WCL. NSF-Tank-8514 and LCS-Tank-8516 are located in the ATLIC Toxic Area and like all the tanks located in this area vent freely to the air within the Toxic Area. The

Toxic Area is serviced by the ATLIC filtration system.

16.3.8.2. NSF-Tank-8514 and LCS-Tank-8516 are operated at atmospheric pressure and each tank's vent is open to the ATLIC Toxic Area which is a Level A area. Emissions from NSF-Tank-8514 and LCS-Tank-8516 are captured by the ATLIC HVAC filters which incorporate activated carbon as an adsorbing media.

16.3.8.3. NSF-Tank-8514 and LCS-Tank-8516 each have a dedicated diaphragm circulation pump (NSF-Pump-8515 and LCS-Pump-8519, respectively) that can be used to mix the contents of each tank.

16.3.8.4. Spent Nitric Acid is transferred from NSF-Tank-8514 or LCS-Tank-8516 to a hazardous waste storage tank located in the ATLIC Environmental Enclosure which also houses the LIC Pollution Abatement System using diaphragm pump NSF-Pump-8565. The tank in the Environmental Enclosure is managed as a less than 90 day accumulation tank. The Spent Nitric Acid waste stream is transferred from NSF-Tank-8514 or LCS-Tank-8516, which are located in the ATLIC Toxic Area, when analytical results confirm that the tank's contents have a Lewisite concentration that is less than the WCL of 200 ppb.

16.4 PLANS AND DESCRIPTION OF THE DESIGN, CONSTRUCTION, AND OPERATION OF THE SECONDARY CONTAINMENT SYSTEM FOR EACH TANK SYSTEM [40 CFR 264.193(a)-(f) and 270.16(g)]

16.4.1 This section addresses the containment and detection of releases for the three TOCDF tank systems: ACS (Section 16.4.5), SDS (Section 16.4.6), ~~and~~ BRA (Section 16.4.8), and the three ATLIC tank systems: LCS, SDS, and NSF (Section 16.4.9). ~~Each subsection supplies information on one of the tank systems.~~

16.4.2 Secondary containment systems are designed, installed, and operated to prevent any migration of wastes out of the system at any time and are capable of detecting and collecting releases and accumulated liquids until the collected material is removed. Secondary containment systems are constructed of compatible materials, placed on an acceptable foundation or base, provided with a leak-detection system, and sloped or otherwise designed to remove spills or leaked wastes.

16.4.3 Specific information on the design and construction of the secondary containment system for each tank system is maintained at the site and is available for inspection upon request. Attachment 11 contains the process flow diagrams, piping and instrumentation diagrams, and other information on the three tank systems.

16.4.4 Secondary containment for all storage tanks in the tank systems is provided by sumps under the tanks, or dikes or vaults around the tanks. Secondary containment for all of the primary containment sumps that are regulated through this Permit is provided by using the external liner concept. The secondary containment system is described for each tank in each system.

16.4.5 TOCDF Agent Collection Tank System

16.4.5.1 ACS-TANK-101 and ACS-TANK-102 are located in the TOX on the first floor of the

MDB. The MDB is designed to contain an accidental release of agent within the structure.

16.4.5.2 The floor of the TOX is sloped to a depressed area and that to a 500-gallon sump. The secondary containment volume of the containment trench and sump is approximately 2,000 gallons. Because the TOX is located inside a building, there is no run-on or infiltration expected, and no increase in containment volume is required for these factors.

16.4.5.3 The ventilation system is designed to act as a key element in the confinement of agent by operating and maintaining the MDB at a negative pressure. The interior faces of the exterior walls are sealed to protect the external environment. The same sealing procedure is applied to ventilation ducting and instrumentation lines that penetrate the walls. Agent monitors will detect any agent leaks from Category A areas through the walls or ventilation systems. The material used to provide sealing of the surfaces and joints of the floors, walls, ceilings, and wall penetrations are Plastite Protect Coating No. 7122 with Primer No. 7100, Epoloid No. 5-65 with Primer No. 7-W-20, and Epoloid Mastic No. 5-E-84. These materials are described in the specifications which are maintained at the site. Equivalent or superior materials may be used in accordance with Condition II.L.

16.4.5.4 The TOX is located aboveground, inside a building, and is not subject to hydraulic pressure, so the requirement for the exterior moisture barrier to prevent migration of moisture into the vault is not applicable.

16.4.6 <u>TOCDF Spent Decontamination Tank System</u>

16.4.6.1. SDS-TANK-101, -102, and -103 are located in the SDS Room next to the TOX on the first floor of the MDB. The floor of the SDS Room is sloped to a containment area and a secondary containment sump. The containment volume is approximately 3,000 gallons. This volume is greater than the capacity of the largest tank. Because the SDS Room is located inside a building, there is no run-on or infiltration expected and no increase in containment volume is required for these factors.

16.4.6.2. Spent decontamination solutions are collected from the MDB sumps. There are 22 on the first floor, 3 on the first floor platform, 34 on the second floor, and 5 on the second floor platform. (See Table 4 in the Tables Section of the Permit for a listing of 24-Hour Intermittent Collection Units (ICUs).) Secondary containment for all of the 24-Hour ICUs in the spent decontamination holding tank system is addressed by applying the external liner concept. Generally, each 24-Hour ICU is of welded steel construction and is surrounded by an external concrete liner. Because all of the tanks and associated external liners are in the same building, the specific aspects of the external liner requirements are duplicated throughout this tank system. These aspects are addressed in the following paragraphs.

16.4.7 <u>External Liner Common Elements</u>

16.4.7.1 All of the sumps that are used for primary containment in the spent decontamination holding tank system are basically similar. Most sumps are constructed of epoxy-coated welded steel, measure 2.3 feet by 2.3 feet by 2.25 feet, and contain 89 gallons. The sump is surrounded by a cast-in-place, epoxy-coated (Epoloid E or equivalent) external

concrete liner. The dimensions of the liner are 2.75 feet by 2.75 feet by 2.38 feet. The capacities of the regulated sumps and liners are shown in Tables 4 and 5.

16.4.7.2 All of the 24-Hour ICUs in the spent decontamination holding tank system are located inside the MDB. There is no run-on or infiltration of precipitation expected inside the building.

16.4.7.3 The external concrete liner is designed to be free from cracks or gaps. The liner has an Epoloid E (or equivalent) epoxy coating to ensure compatibility with the wastes being handled. The liner was monolithically poured as a part of the floor in the MDB and completely contains the sump contained within the liner. The liner is designed and installed to surround the sump completely. The liner will contain any waste material that may leak from the sump and will prevent both lateral and vertical migration of the waste.

16.4.8 TOCDF Brine Reduction Area Tank System

16.4.8.1 BRA-TANK-101, -102, -201, and -202 are located outside, in a diked area immediately adjacent to the PUB.

16.4.8.2 Secondary containment for all of the tanks in the brine reduction tank system is addressed by applying the vault concept. The diked area surrounding the brine storage/treatment tanks is designed and constructed as a vault. The BRA Tank secondary containment system has a capacity of 47,000 gallons.

16.4.8.3. The construction specifications for the installation required chemical-resistant water stops at all joints in the diked area. The foundation and interior walls of the diked area are sealed with an impermeable Epoloid E (or equivalent) epoxy paint coating.

16.4.8.4. The BRA tank system is located outside aboveground and is not subject to hydraulic pressure because the foundation is located above the high water table, so the requirement for an exterior moisture barrier to prevent migration of moisture into the vault is not applicable. The brine storage tanks are located in a nonporous, epoxy-coated, reinforced-concrete, diked area outside of the Brine Reduction Building. The diked area contains one sump with a sloped bottom and level probe. A vapor barrier and a 4-inch capillary barrier are used below the vault bottom to resist surface water intrusion.

16.4.8.5 There is a sump and sump pump located at the load/unload station. The sump provides secondary containment for any leakage from the equipment in the loading area and the pipe trench. The pipe trench drains into this sump. This sump is 36 inches wide by 36 inches long by 72 inches deep. The sump is made of 6-inch thick reinforced concrete and covered with steel grate. The sump and pipe trench are coated with a chemical resistant epoxy. The sump has a capacity of 400 gallons. Liquid collected in the pipe trench and the sump is transferred and managed in accordance with Module IV. The sump is pumped to a transport tanker for subsequent disposal. The sump is equipped with a level indicating monitor. If liquid is indicated in the sump an alarm is activated in the control.

16.4.9. ATLIC Tank System Secondary Containment

16.4.9.1. The ATLIC permitted hazardous waste storage and treatment tanks are located in the Toxic Area. The secondary containment for these tank systems is provided by the

impermeable base of the Toxic Area and the six inch curb that run the length of the area's outer perimeter. The impermeable base is created by coating the concrete floor and berm with an epoxy coating.

16.4.9.2. In addition there are two sumps located in within the bermed Toxic Area. The sumps are of identical design as the Intermittent Collection Units located at the TOCDF.

16.4.9.3. Further the Major Spill Tank that is located in the Toxic Area is maintained empty as a contingency should one of the tanks within the Toxic Area fail. The requirement to hold this tank in reserve to address potential major spill essentially creates an additional 1,020 gallons of secondary containment capacity. This tank is constructed of stainless steal which is compatible with all the wastes and materials that are stored in the tanks located within the ATLIC Toxic Area. Through the use of a flexible hose that can be connected to any tank within the Toxic Area and the Major Spill Tank and each tank's circulation pump, the contents of any failing tank in the Toxic Area can be transferred to the Major Spill Tank. Liquid accumulating in the Toxic Area sump can also be transferred to the Major Spill Tank.

16.4.9.4. There are five permitted hazardous waste storage and treatment tanks, and one tank that is exempt from the hazardous waste regulations because it hold Nitric Acid that will be used to rinse out Lewisite TCs (i.e., product), within the Toxic Area bermed area. One of the five permitted tanks is maintained empty to address major spills. Each tank is of identical design except for the materials of construction (the Lewisite Collection Tank being made of carbon steel, the others made of stainless steel). The permitted storage capacity of each tank is 1,020 gallons. The volume of secondary containment created by the bermed Toxic Area is 1,886 gallons. The total volume available to address spills in the Toxic Area, including that provided by the Major Spill Tank is 2,906 gallons.

16.5 TANK AGE DETERMINATION [40 CFR 264.191(b)(4)]

16.5.1 The three TOCDF hazardous waste tank systems were fabricated after January 12, 1988 and each underwent a Facility Construction Certification approved by the Division of Solid and Hazardous Waste. *Therefore the requirements of* 40 CFR 264.191 are not applicable.

16.5.2. The fabrication date of the three ATLIC hazardous waste tank systems is after January 12, 1998 and each tank is required to undergo a Facility Construction Certification. The certification is approved by the Division of Solid and Hazardous Waste. Therefore the requirements of 40 CFR 264.191 are not applicable.

16.6 TANK SYSTEM SECONDARY CONTAINMENT REQUIREMENTS [40 CFR 264.193(b)-(e) and 270.16(g)]

16.6.1 TOCDF Secondary Containment Requirements

16.6.1.1 Earlier in this section, the external liner and vault concepts were used to describe secondary containment for each one of the hazardous waste storage tanks at the installation. Each system is described in terms of the specific requirements for external liner and vault systems given in 264.193(e). This section addresses the general

requirements for secondary containment systems. It is intended to supplement the specific information presented in Section 16.4. titled Plans and Description of the Design, Construction, and Operation of the Secondary Containment System for Each Tank System.

16.6.1.2 Each secondary containment system is designed, installed, and operated to prevent any migration of wastes outside of the system. The external liner and vault concepts that have been described perform this function for the hazardous waste storage tanks at the facility. In the event of a spill or leak, the waste material will be collected in a sump in the area. Pumpable quantities of agent will be transferred directly to the ACS tanks. Non-pumpable quantities of agent will be decontaminated according to the procedures in Attachment 9 (Contingency Plan) and transported to the SDS tanks. The incinerator pollution abatement system brines will be transported to the BRA tanks. There are no underground hazardous waste storage tanks.

16.6.1.3 The secondary containment systems are capable of detecting and collecting releases until the material can be removed. The specific discussion for each secondary containment system gives the containment volume. This volume is larger than the tank for which secondary containment is being provided. The method of detecting releases from the tanks is discussed in Section 16.7, titled Tank System Leak Detection Requirements.

16.6.1.4 Secondary containment systems are lined with compatible materials and have the strength and thickness to prevent failure from pressure gradients, physical contact with the waste, climatic conditions, and the daily stresses of operation. The external liner and vault systems previously described meet these criteria. The external liners and floors, walls, sills, and other components of the vaults are covered with an impermeable epoxy coating as specified in the construction specifications which are maintained at the site. Specifically, the sump was constructed of mild steel. Both the sump and sump liner are coated with an epoxy paint system, as described in the specifications which are maintained at the site. This paint system has been approved by the Army for protection of coated surfaces against corrosion by agents or spent decontamination solutions. Chemical-resistant water-stops of virgin poly-vinyl chloride or rubber with adequate tensile strength, elongation, resistance to applicable chemicals, and aging are used for all vault joints. The exterior moisture barrier used is a 19-mil-thick polyethylene sheeting.

16.6.1.5 The external liners for the sumps in the spent decontamination holding tank system are constructed of reinforced concrete and are designed for maximum inside head and outside active pressure. The bearing on the soil with the sump and liner is within the allowable soil-bearing capacity. The external liners are designed to withstand any settlement or uplift. The weight of the sump and liner is such that there is a factor of safety of 1.5 against uplift from hydraulic pressure. Other equipment and piping are designed to withstand internal pressures. The equipment is designed for pressures that are at least 10 percent above the maximum operating pressures and is listed to 1.5 times the maximum pressure per the American National Standards Institute.

16.6.1.6 Climatic conditions have been taken into account for the BRA tank secondary containment system that is located outdoors. Adequate protective coatings have been specified for the outdoor components in the specifications which are located at the site. Additional protection of piping and equipment from climatic conditions is provided by specifying minimum design temperatures, as well as insulation and/or heat tracing. The

stresses of daily traffic, including nearby vehicular traffic, have been considered in the design of the secondary containment systems.

16.6.1.7 The installation is not located near major traffic routes. The only nearby traffic is from installation vehicles. These vehicles will not adversely impact the integrity of the secondary containment systems.

16.6.1.8 All of the secondary containment vaults are located on sound foundations that are capable of providing support to the tank systems. Information on the structural aspects of the external liner and vault systems is located in the specifications which is located at the site.

16.6.1.9 The secondary containment sump systems are provided with a leak-detection system that will detect (within 24 hours) the failure of the primary or secondary containment structure or releases of any waste. Further information on detection of releases is given in subsequent sections on leak detection for both the tank systems (Section 16.7) and ancillary equipment (Section 16.9).

16.6.1.10 The secondary containment sump system external liners and vaults are sloped or otherwise designed to remove accumulated liquids. In most cases, the accumulated liquids flow to the bottom of the sloped area. Sump pumps then pump the accumulated liquid to the SDS tanks before incineration in the LICs.

16.6.1.11 The design standards for construction of the secondary containment systems are located at the site. Certain features of the secondary containment systems have been specifically designed for the TOCDF. These features utilize applicable parts of commonly accepted industrial design standards as the best available standards, even though these standards have not been written specifically for the applications proposed in this Permit. The General Painting specification which is maintained at the site, and available for inspection upon request, is applicable to all features of the secondary containment system. The specification for Concrete Work for Building Construction is maintained at the site, and is applicable for construction of the secondary containment sumps, vaults, and the liner surrounding the sumps (24-Hour ICUs). The specification for Expansion Joints, Construction Joints, and Waterstops is maintained at the site, and is applicable to the waterstops required for vaults. The Specification for Miscellaneous Metal Work is maintained at the site, and is applicable to the construction of the 24-Hour ICUs.

16.6.2. ATLIC Secondary Containment Requirements

16.6.2.1. Secondary containment for ATLIC storage and treatment tanks is provided by the Toxic Area floor which is made impermeable by the epoxy coating and the six inch high berm that circumscribes the secondary containment area. Additional secondary containment capacity is provided by the Major Spill Tank that is maintained empty unless it is required to address major spills and the Toxic Area sumps whose design includes a concrete vault that is covered with a metal liner coated with epoxy coating.

16.7 TANK SYSTEM LEAK DETECTION REQUIREMENTS [40 CFR 264.193(b)(2), (c)(3), and (e)(1)(iii)]

16.7.1. TOCDF Leak Detection Requirements

16.7.1.1. Secondary containment systems are capable of detecting and collecting releases and accumulated liquids until the collected material is removed. The containment system is provided with a leak detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours. The external liner and vault systems used for secondary containment for the three tank systems and ICUs meet these requirements.

16.7.1.2 The principles of the leak detection system are similar for the ACS tanks, SDS tanks, and sumps inside the MDB. There is an agent monitoring system installed throughout the facility. This system monitors the ambient air for the presence of agent and is a primary indicator of agent releases. This monitoring system is described in more detail in Attachment 22 (Agent Monitoring Plan).

16.7.1.3 The sumps below the agent collection and spent decontamination holding tanks will contain any tank leakage. Tank leakage is detected by a decrease in the level of material in the tank, as well as by the level indicators and alarms in the sumps below the tanks. These level indicators are displayed in the Control Room.

16.7.1.4 Regulated sumps at the facility are configured with a level indicator which is provided with an alarm and a sump pump. These level indicators and alarms provide another method of leak detection. Any rise in sump level is cause for operator attention. The sump levels and operating status of the sump pumps for the agent collection and spent decontamination holding tank systems are displayed in the Control Room. From here, the control room panel indicates which sump level is increased, and the operator determines whether there is an operational explanation for the rise in sump level, such as general housekeeping duties, equipment wash down, or other process activities that might impact the sump level. Leaks or releases would be detected by the sump alarms and level indicators and would appear as a rise in sump level without an accompanying operational explanation. The sump levels and sump pump operating status for the BRA are displayed on a control panel in the area.

16.7.1.5 Secondary protection for 24-Hour ICUs and primary sumps is provided by the external concrete liner concept. Each liner is equipped with a probe to detect any leakage into the liner. The liners are normally empty and the presence of material in the concrete liner is an indication of leakage from the metal sump. Any leakage is detected by the level indication for the liner and by the inspection of process sumps. The bottom of the liner is sloped to the level sensor. The level sensor is screwed into a coupling that is welded into the mounting flange for the sump. Material collected in the external liner is removed by inserting a dip pipe into the liner through a coupling that is welded on the support flange for the metal sump. The material is then pumped to the SDS tanks for incineration in the secondary combustion chamber of the LICs. The liner is then decontaminated, as necessary, and triple-rinsed. All rinsing materials are collected and disposed of in the LICs.

16.7.1.6 Each sump is visually inspected when waste is present, for the presence of liquids as described in Attachment 5 (Inspection Plan).

16.7.2. ATLIC Leak Detection Requirements

16.7.2.1. Releases to the ATLIC Toxic Area secondary containment system can be detected in multiple ways. Each tank is equipped with a level indicator. An unexpected drop in tank liquid level as observed on a Control Room Advisor Screen could indicate a release from the associated tank.

16.7.2.2. Each sump is equipped with a leak detection system located between the concrete vault and the metal liner. A leaking metal liner would cause the leak detection system for the associated sump to alarm as observed on a Control Room Advisor Screen.

16.7.2.3. A release of agent from the LCS tank system can initially be detected by the agent monitors dedicated to the Toxic Area.

16.7.2.4. Releases of hazardous waste can also be detected during daily visual inspections that are conducted remotely from the Control Room through the use of close circuit televisions. The equipment in the Toxic Area also undergoes a physical inspected weekly by entrants that enter the area (see Attachment 5).

16.8 ANCILLARY EQUIPMENT SECONDARY CONTAINMENT REQUIREMENTS [40 CFR 264.193(f) and 270.16(g)]

16.8.1. TOCDF Ancillary Equipment Secondary Containment Requirements

16.8.1.1 Secondary containment has been provided for all ancillary equipment, with only a few exceptions, such as equipment that is inspected for leaks on a daily basis. This equipment include aboveground piping (exclusive of flanges, joints, valves, and other connections); welded flanges, joints, and connections; sealless or magnetically coupled pumps; and pressurized aboveground piping systems with automatic shutoff devices.

16.8.1.2 The ancillary equipment associated with the three hazardous waste storage tank systems at the installation have the necessary secondary containment features. Secondary containment for each tank system is addressed in the following paragraphs.

16.8.1.3 Secondary containment for ancillary equipment in the Agent Collection and the Spent Decontamination Holding Tank System relies on the external liner concept. These two tank systems are totally contained within the Munitions Demilitarization Building where all ancillary equipment is provided with secondary containment in the same manner as the tank systems. This description is given in Section 16.4, Plans and Description of the Design, Construction, and Operation of the Secondary Containment System for Each Tank System. The series of sumps, trenches, and external liners provides secondary containment for the ancillary equipment in the same manner as for the tanks themselves.

16.8.1.4 Secondary containment within Category A areas is provided by Primary Containment Sumps which are located for containment of leaks from agent piping. Piping from the ACS tanks to the LICs stays within Category A areas.

16.8.1.5. Secondary containment for ancillary equipment associated with the BRA tanks relies on the vault concept and the use of welded pipe with daily inspections for leaks. The ancillary equipment located in the diked area outside and the ancillary equipment located

within the BRA are provided with secondary containment in the same manner as the BRA tanks. The diked area around the BRA tanks and the BRA are vaults. A more detailed description of these vault systems is given in Section 16.4, Plans and Description of the Design, Construction, and Operation of the Secondary Containment System for Each Tank System. The BRA tank system also includes the brine transfer line, which brings the brine solution from the PAS area to the BRA. The brine transfer line is constructed of welded pipe and inspected for leaks daily. When flanges are required, piping is routed in an epoxy-coated trench with a grate cover so that full view of the piping is available for inspection purposes. Inspection procedures are given in Attachment 5 (Inspection Plan). The piping specifications are maintained at the site and are available for inspection upon request.

16.8.1.6 Secondary containment for the ancillary equipment associated with the brine loading station partially relies on the vault concept. The portion of the pipe line that is above ground is visible and is inspected daily for leaks. The portion of the pipe line that is in the pipe trench is equipped with weep holes. These weep holes are connected to a common header. This header drains to a sump. The pipe trench concrete and sump are coated with a chemical-resistant epoxy coating.

16.8.2. ATLIC Ancillary Equipment Secondary Containment Requirements

16.8.2.1. Secondary containment for permitted hazardous waste storage and treatment tank ancillary equipment that is located in the ATLIC Toxic Area to include pumps and piping systems is provided by the bermed and impermeable base of the Toxic Area (i.e., the epoxy coated Toxic Area floor). Hazardous waste transfer lines that traverse the Processing Area, running from the glove-boxes to the Toxic Area are double-walled.

16.9 ANCILLARY EQUIPMENT LEAK DETECTION REQUIREMENTS [40 CFR 264.193(f) and 270.16(g)]

16.9.1 TOCDF Ancillary Equipment Leak Detection

16.9.1.1 Leak detection is provided for all ancillary equipment in a similar manner as described for secondary containment Section 16.7. The ancillary equipment associated with the four hazardous waste storage tank systems at the installation has the necessary leak detection features. Leak detection for all tank systems is addressed in the following paragraphs.

16.9.1.2 Leak detection for ancillary equipment in the ACS, SDS, and BRA tank systems relies on the agent monitoring system and the level indicator alarm and sump pump in each sump at the facility. This leak detection system is described in more detail in Section 16.7, titled Tank System Leak Detection Requirements. The principles remain the same. The agent monitoring system monitors the ambient air for the presence of agent and the level indicators and alarms sound when sump level changes. This level change is investigated, and the operators determine whether the level change is a result of a process operation or some other cause. The one exception to this leak detection system is the brine transfer line. This line, which brings brine from the PAS to the BRA, is constructed of welded pipe and is inspected for leaks at least once during each operating shift, as explained in Section 16.8 and given in Attachment 5 (Inspection Plan). Piping specifications are maintained at the site and are available for inspection upon request.

16.9.2 ATLIC Ancillary Equipment Leak Detection

16.9.2.1 ATLIC ancillary equipment leak detection is provided by the agent monitors located within the ATLIC Toxic Area and level indicators located in the two Toxic Area sumps. In addition each Toxic Area sump is provided with leak detection sensors located in the interstitial space between the concrete sump and the metal liner.

16.10 TANK SYSTEM MANAGEMENT PRACTICES [40 CFR 264.194(b) and 270.16(c) and (d)]

16.10.1 Management of Incompatible Wastes in Tanks

16.10.1.1 The design of the ~~facility~~ TOCDF allows for brines from the PAS to go to the TOCDF BRA tank system, spent decontamination solutions from the sumps to go to the SDS, and agent from the demilitarization machines to go to the ACS. In addition, agent contaminated fluids (hydraulic fluid, fuel oil, lubricating oil, etc.) from a spill or maintenance activities can be transferred to the SDS after the fluid has been decontaminated. These fluids will be transferred to the ACS tanks prior to treatment in the primary combustion chamber of the LICs. These miscellaneous liquid wastes, if placed in the SDS and ACS tanks, must be compatible with any other fluids within these tank systems. All PAS brines from all of the incinerators are compatible because the pollution abatement systems are the same for each incinerator and they use the same scrubbing material (e.g., sodium hydroxide). When changing from one agent to another, the ACS tanks are rinsed with decontamination solution to remove any residual agent. The spent decontamination solution is then drained from the ACS tanks and pumped to an SDS tank for subsequent processing through one of the LIC secondary chambers.

16.10.1.2 The design of the ATLIC Toxic Area provides separation between tanks storing incompatible wastes. The Spent Decontamination Solution and the nitric acid solutions that are used to rinse out Lewisite ton containers are incompatible. To prevent their mixing should there be a failure of two of the tanks in the Toxic Area, a berm is provided which separates the area where SDS-Tank-8523 and the area where the tanks storing spent and product nitric acid are located.

16.10.2 Management of Ignitable or Reactive Wastes in Tanks

16.10.2.1 For the TOCDF; ~~A~~agent, brine and spent decontamination solutions have flash points that classify them as Class IIIB liquids in accordance with the National Fire Protection Association. Additionally, agent contaminated fluids (hydraulic fluid, fuel oil, lubricating oil, etc.) from a spill or maintenance activities, can be stored in the SDS Tanks and the ACS tanks prior to treatment in the primary combustion chamber of the LICs. These are not unstable or reactive liquids as defined by the National Fire Protection Association. The BRA tanks are in full compliance with National Fire Protection Association requirements. The agent collection and spent decontamination holding tanks are located in the TOX and SDS Room, respectively, which are provided with a containment volume that is in excess of the largest tank capacity. The TOCDF brine holding tanks are located outdoors within a diked containment area capable of

containing the full contents of one of these tanks. All tank systems are located at least 50 feet away from the property line of the facility.

16.10.2.2 For the ATLIC, all hazardous waste storage and treatment tank systems are located within the ATLIC Toxic Area which vents to the ATLIC HVAC Filter System and provides secondary containment. Therefore releases from the tanks are prevented from escaping to the environment. Additionally the tank systems are located at least 50 feet away from the property line of the facility.

16.10.3 General Operating Requirements

16.10.3.1 TOCDF General Operating Requirements

16.10.3.1.1 The environmental effects of a release from the rupture disc and conservation breather vent on the agent collection system storage tanks are minimized by design, rather than procedures. The ventilation filter system contains any vapors that are released. Liquid releases are contained in the sump and drainage systems. Leak protection is addressed in Section 16.7, titled Tank System Leak Detection Requirements and Attachment 5 (Inspection Plan). Corrosion protection is addressed in Section 16.2, titled External Corrosion Protection of the specifications which is maintained at the site and is available for inspection upon request.

16.10.3.1.2 Should there be a release to the secondary containment system of agent, brine, or spent decontamination solution, the area would be cleaned up expeditiously and, in any case, within 24 hours. The spill is collected in an appropriate sump and pumped to a similarly classified tank. The floors in the area are sloped to encourage spill runoff into the sumps. Cleanup includes collecting the spilled material and, if necessary, rinsing the area with decontamination solution to minimize agent contamination. All sumps and equipment in the area of the release would then be rinsed with process water. All of the rinses, both spent decontamination holding and process water, are pumped to the spent decontamination holding tanks before disposal in the LICs. After the cleanup of the release and the rinsing, there would be a small amount of residual process water remaining in the sumps.

16.10.3.1.3 Wash downs are frequent occurrences, especially in the Toxic Maintenance Area where wash downs are routine in the decontamination of contaminated parts that are in need of repair.

16.10.3.1.4 Specific procedures for an agent spill or leaked waste in the nontoxic areas (Categories C, D, and E) of the MDB are addressed in Attachment 9 (Contingency Plan).

16.10.3.1.5 Specific procedures for spills, leaked wastes, and precipitation outside of the MDB are addressed in Attachment 9 (Contingency Plan).

16.10.3.1.6 Any tank system or secondary containment system from which there is a spill or leak is removed from service immediately. All material flows into the tank are stopped. The system is inspected to determine the cause of the release. If the release is from a tank system, sufficient waste is removed from the tank system to prevent any further release. If the release is to a secondary containment system, all released materials are removed within 24 hours, or in as timely a manner as is possible to prevent harm to human health

and the environment.

16.10.3.2 ATLIC General Operating Requirements

16.10.3.2.1 All ATLIC tank systems operate at ambient pressure. The filling of the tanks will result in vapors being released to the ATLIC Toxic Area which is under engineering controls provided by the ATLIC HVAC System.

16.10.3.2.2 Similar to the TOCDF, leaks are addressed in as timely a manner as possible. Should a tank system fail, the content of the failed tank system will be transferred to the Major Spill Tank. Liquid wastes accumulating in the sumps are transferred to the corresponding tank system within 24-hours from the time the liquids begin to accumulate.

16.10.3.2.3 Any tank system or secondary containment system from which there is a spill or leak is removed from service immediately. All material flows into the tank are stopped. The system is inspected to determine the cause of the release. If the release is from a tank system, sufficient waste is removed from the tank system to prevent any further release. If the release is to a secondary containment system, all released materials are removed within 24 hours, or in as timely a manner as is possible to prevent harm to human health and the environment.

Table 16-1
TOCDF AGENT COLLECTION SYSTEM STORAGE TANKS

Tanks System		Tank Identification Number	Tank Identification Number
		ACS-TANK-101	ACS-TANK-102
Design Standard		ASME Section VIII Division I	ASME Section VIII Division I
Tank Capacity, gal.		660	1,300
Working Volume, gal.		500 agent, 582 other liquids	1,130
Corrosion Allowance, in.		¼	¼
Calculated Shell Thickness, in.[a]		0.0763	0.0763
Specified Shell Thickness, in.[b]		½	½
Lining Material		None	None
Dimensions:	Diameter, ft	3.5 I.D.	4.5 I.D.
	Height, ft	9.75 incl. domed heads	11.75 incl. domed heads
Design Temperature, °F		150	150
Design Pressure, psig		15	15
Pressure Control		None	None
Vapor Pressure	HD	0.11 mm Hg @ 25° C	0.11 mm Hg @ 25° C
	GB	2.9 mm Hg @ 25° C	2.9 mm Hg @ 25° C
	VX	0.00063 mm Hg @ 25° C	0.00063 mm Hg @ 25° C
Maximum Height of Liquid in Tank (LSHH nozzle)		80% of height from bottom of tank 7'-6" above tangent[d]	80% of height from bottom of tank 8'-9" above tangent[d]
Projected Corrosion Rate Based on NACE Corrosion Survey[c]		0.2 mil/yr	0.2 mil/yr
Tank Spacing, ft		3.5	3.5

Notes:

a. Calculated shell thickness is the minimum thickness necessary to adequately support the liquid in the tanks. It is calculated by taking into account liquid, wind and earthquake loads, design code, and construction material. It does not include corrosion allowances.

b. Specified shell thickness is the corrosion allowance plus calculated shell thickness and then specified at the next larger nominal plate size.

c. Agent is not specifically listed in the National Association of Corrosion Engineer's Corrosion Survey.

d. The tank tangent is the geometric transition where the cylindrical side meets the ellipsoidal bottom, approximately two inches below the head-to-shell weld.

Table 16-2
TOCDF SPENT DECONTAMINATION HOLDING TANK SYSTEM[a]

Tank System		Tank Identification Number SDS-TANK-101, SDS-TANK-102, and SDS-TANK-103
Design Standard		ASME, Section VIII, Division I
Tank Capacity, gal.		2,300
Working Volume, gal.		2,200
Corrosion Allowance, in.		1/8
Calculated Shell Thickness, in.[b]		0.102
Specified Shell Thickness, in.[c]		5/16
Dimensions:	Diameter, ft	6.0 I.D.
	Height, ft	11.5 incl. domed bottom
Design Temperature, °F		150
Design Pressure, psig		15
Pressure Control		None
Vapor Pressure		0.6 psia @ 85° F
Maximum Height of Liquid in Tank		9 ft-5 in. from bottom tangent of tank
Projected Corrosion Rate Based on RISUN Technologies Design Assessment Report, October 1997		0.002 to 0.004 inch per year
Tank Spacing, ft		3.5

Notes:

a. The above data is for the unlined carbon steel tanks used during the GB campaign. Before sodium hypochlorite decontamination solution is used in the VX and mustard campaigns, these tanks will be equipped with a 3/16 inch polyvinyl chloride liner that increases the corrosion allowance accordingly and the corrosion rate is therefore projected to be negligible. A skeletal system consisting of four Titanium rings has been placed inside the tank to ensure the stability of the liner.

b. Calculated shell thickness is the minimum thickness necessary to adequately support the liquid in the tanks. It is calculated by taking into account liquid, wind and earthquake loads, design code, and construction material. It does not include corrosion allowances.

c. Specified shell thickness is the corrosion allowance plus calculated shell thickness and then specified at the next larger nominal plate size.

Table 16-3
TOCDF BRINE STORAGE TANK SYSTEM

Tank System		Tank Identification Number BRA-101, 102, 201 and 202
Design Standard		API 650
Tank Capacity, gal.		47,000
Working Volume, gal.		42,900
Corrosion Allowance, in.[a]		¼
Calculated Shell Thickness, in.[a,b]		0.0507
Recommended Shell Thickness, in.		3/8
Lining Material		Epoxy
Dimensions:	Diameter, ft	20
	Height, ft	20
Design Temperature, °F		185
Design Pressure, psig		15
Pressure Control		None
Vapor Pressure		4.4 psia @ 160° F
Maximum Height of Liquid in Tank		18 ft 3 in. from bottom of tank
Projected Corrosion Rate Based on NACE Corrosion Survey		None with liner
Tank Spacing, ft		5

Notes:

a. Calculated shell thickness is the minimum thickness necessary to adequately support the liquid in the tanks. It is calculated by taking into account liquid, wind and earthquake loads, design code, and construction material. It does not include corrosion allowances.

b. Specified shell thickness is the corrosion allowance plus calculated shell thickness and then specified at the next larger nominal plate size.

Table 16-4
ATLIC LEWISITE AGENT COLLECTION SYSTEM STORAGE TANKS

Tank System		Tank Identification Number
		LCS-Tank-8511 (agent) and LCS-Tank-8534 (spill)
Design Standard:		ASME Boiler & Process Vessel Code *Section VIII*
Material of Construction:		LCS-Tank-8511 (carbon steel) LCS-Tank-8534 (stainless steel)
Tank Capacity, gal.		1,065
Working Volume, gal.		884
Corrosion Allowance, in.		0.2500
Calculated Shell Thickness, in.[a]		0.325
Specified Shell Thickness, in.[b]		0.125
Lining Material		None
Dimensions:	Diameter, ft	5.333
	Height, ft	6.833
Design Temperature, °F		100
Design Pressure, psig		5
Pressure Control		None
Vapor Pressure (mm Hg)	L	34.6
Maximum Height of Liquid in Tank (LSHH nozzle)[c], in.		67.5
Volume below working volume, gal.		120.95
Tank Spacing, ft		Greater than 8 ft.

Notes:

a. Calculated shell thickness is the minimum thickness necessary to adequately support the liquid in the tanks. It is calculated by taking into account liquid, wind and earthquake loads, design code, and construction material. It does not include corrosion allowances.

b. Specified shell thickness is the corrosion allowance plus calculated shell thickness and then specified at the next larger nominal plate size.

c. The tank tangent is the geometric transition where the cylindrical side meets the ellipsoidal bottom, approximately two inches below the head-to-shell weld.

Table 16-5
ATLIC SPENT DECONTAMINATION SYSTEM STORAGE TANK

Tank System		Tank Identification Number
		SDS-Tank-8523
Design Standard:		ASME Boiler & Process Vessel Code Section VIII
Material of Construction:		Stainless Steel
Tank Capacity, gal.		1,065
Working Volume, gal.		884
Corrosion Allowance, in.		0.2500
Calculated Shell Thickness, in.[a]		0.325
Specified Shell Thickness, in.[b]		0.125
Lining Material		None
Dimensions:	Diameter, ft	5.333
	Height, ft	6.833
Design Temperature, °F		100
Design Pressure, psig		5
Pressure Control		None
Vapor Pressure (mm Hg)	L	34.6
Maximum Height of Liquid in Tank (LSHH nozzle)[c], in.		67.5
Volume below working volume, gal.		120.95
Tank Spacing, ft		Greater than 8 ft.

Notes:

a. Calculated shell thickness is the minimum thickness necessary to adequately support the liquid in the tanks. It is calculated by taking into account liquid, wind and earthquake loads, design code, and construction material. It does not include corrosion allowances.

b. Specified shell thickness is the corrosion allowance plus calculated shell thickness and then specified at the next larger nominal plate size.

c. The tank tangent is the geometric transition where the cylindrical side meets the ellipsoidal bottom, approximately two inches below the head-to-shell weld.

Table 16-6
ATLIC NITRIC ACID HOLDING SYSTEM STORAGE TANKS

Tank System		Tank Identification Number
		NSF-Tank-8514 LCS-Tank-8516
Design Standard:		ASME Boiler & Process Vessel Code Section VIII
Material of Construction:		Stainless Steel
Tank Capacity, gal.		1,065
Working Volume, gal.		884
Corrosion Allowance, in.		0.2500
Calculated Shell Thickness, in.[a]		0.325
Specified Shell Thickness, in.[b]		0.125
Lining Material		None
Dimensions:	Diameter, ft	5.333
	Height, ft	6.833
Design Temperature, °F		100
Design Pressure, psig		5
Pressure Control		None
Vapor Pressure (mm Hg)	L	34.6
Maximum Height of Liquid in Tank (LSHH nozzle)[c], in.		67.5
Volume below working volume, gal.		120.95
Tank Spacing, ft		Greater than 8 ft.

Notes:

a. Calculated shell thickness is the minimum thickness necessary to adequately support the liquid in the tanks. It is calculated by taking into account liquid, wind and earthquake loads, design code, and construction material. It does not include corrosion allowances.

b. Specified shell thickness is the corrosion allowance plus calculated shell thickness and then specified at the next larger nominal plate size.

c. The tank tangent is the geometric transition where the cylindrical side meets the ellipsoidal bottom, approximately two inches below the head-to-shell weld.

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
ACS - drain from BDS	SP-9237	MPB	37° Flare fittings	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	XV-396	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	SP-159	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	PIT-58	MPB	Flanged connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	PDIT-66	MPB	Flanged connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	XV-301	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	MMS-FILT-101	MPB	Flanged connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	XV-302	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	1/2"-V-302A	MPB	Valve (Note:To AASS system w/plug)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	51-1-1/2"-V-41	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	SP-159	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	ACS-PUMP-114	MPB	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	SP-159	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	51-1"-V-43	MPB	Valve (w/blind flange)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	51-1"-V-44	MPB	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	3/4"-V-9020C	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	FV-120	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	1"-V-102	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	SP-9237	MPB	37° Flare fittings	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	XV-496	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	SP-159	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	PIT-39	MPB	Flanged connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	PDIT-67	MPB	Flanged connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	XV-401	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	MMS-FILT-102	MPB	Flanged connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
ACS - drain from BDS	XV-402	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	1/2"-V-9400	MPB	Valves (sampling)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	51-1-1/2"-V-21	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	SP-159	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	ACS-PUMP-115	MPB	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	SP-159	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	51-1"-V-24	MPB	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	3/4"-V-9020D	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	FV-20	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	1"-V-9101	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	1"-V-9102	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	1"-V-9103	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	1"-V-9104	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	1"-V-9105	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	1"-V-9106	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	1"-V-9113	MPB	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	XV-9107	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	HTS-PUMP-9101	MPB	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101	66-FILT-9101	MPB	Flanged Connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-101/102	BDS-101/102 Transfer Line	MPB	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-102	1"-V-9201	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-102	1"-V-9202	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-102	1"-V-9203	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-102	1"-V-9204	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-102	1"-V-9205	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-102	1"-V-9206	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
HTS-BDS-102	1"-V-9213	MPB	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-102	XV-9207	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-102	HTS-PUMP-9201	MPB	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
HTS-BDS-102	66-FILT-9201	MPB	Flanged Connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from BDS	1"-V-26	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	MDM Drain Tube Flex Hose	MPB	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-74	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	ACS-TANK-108	MPB	Flanged Connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-75	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	ACS-FILT-105	MPB	Flanged Connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	PI-73	MPB	Flanged Connection w/ isolation valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	Flex Hose	MPB	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1 1/2"-V-50	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-51	MPB	Valve (w/blind flange)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-54	MPB	Valve (w/blind flange)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-58	MPB	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-53	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	Flex Hose	MPB	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	ACS-PUMP-105	MPB	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	Flex Hose	MPB	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-9077	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-73B	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	LIT-73	MPB	Flanged Connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	MDM Drain Tube Flex Hose	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-84	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS-drain from MDM	Froth Collection Flex Hose	MPB	Flex connector (at Punch Station)	>10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
ACS - drain from MDM	ACS-TANK-106	MPB	Flanged connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-9078	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-85	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	ACS-FILT-106	MPB	Flanged connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	PI-83	MPB	Flanged Connection w/ isolation valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	Flex hose	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1 1/2"-V-70	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-71	MPB	Valve (w/blind flange)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-74	MPB	Valve (w/blind flange)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-78	MPB	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-73	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	Flex Hose	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	ACS-PUMP-106	MPB	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	Flex Hose	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-9087	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-83B	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	LIT-83	MPB	Flanged connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	MDM Drain Tube Flex Hose	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-94	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS-drain from MDM	Froth Collection Flex Hose	MPB	Flex connector (at Punch Station)	>10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-9088	MPB	Flanged connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1/4"-V-93E	MPB	Valve (sampling)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-95	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	ACS-FILT-107	MPB	Flanged connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	PI-93	MPB	Flanged Connection w/ isolation valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	Flex hose	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
ACS - drain from MDM	1 1/2"-V-90	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-91	MPB	Valve (w/blind flange)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-94	MPB	Valve (w/blind flange)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-98	MPB	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	1"-V-93	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	Flex Hose	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	ACS-PUMP-107	MPB	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	Flex Hose	MPB	Flex connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-9097	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS – drain from MDM	XV-9098	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	XV-93B	MPB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - drain from MDM	LIT-93	MPB	Flanged connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-82	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-76	TOX	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1 1/2"-V-81	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1-1/2"-V-77	TOX	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	LV-84	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-78	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	LE-91	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	LIT-93	TOX	Flange connections w/ chemical seals	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	LE-95	TOX	Flange connection w/ plug drain valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1-1/2"-V-85	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1-1/2"-V-86	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-81	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-84	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-79	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
ACS Tanks	LV-97	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	PDIT-099	TOX	Flange connections w/ chemical seals	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	SP-102	TOX	Flange connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1/2"-V-124	TOX	Valve (plugged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1/2"-V-125	TOX	Plug Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1"-V-82	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1"-V-83	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-80	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-90	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-96	TOX	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1-1/2"-V-88	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1-1/2"-V-97	TOX	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	LV-86	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-98	TOX	Check valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-111	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1-1/2"-V-92	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	LE-111	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	LIT-109	TOX	Flange connections w/ chemical seals	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	LE-107	TOX	Flange connection w/ plug drain valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1-1/2"-V-105	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1-1/2"-V-106	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-101	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-104	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-99	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	LV-105	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	PDIT-104	TOX	Flange connections w/ chemical seals	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
ACS Tanks	SP-102	TOX	Flange connections	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1/2"-V-126	TOX	Plug Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1"-V-102	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	1"-V-103	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS Tanks	2"-V-100	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1 1/2"-V-9022	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	XV-9150	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	SP-159B	TOX	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1 1/2"-V-9301	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	SP-159A	TOX	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	ACS-PUMP-9300	TOX	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1/4"-V-9303	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1/4"-V-9302	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	SP-9886	TOX	Flange Connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	SP-159A	TOX	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1 1/2"-V-9300	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	FIT-9101	TOX	Flange Connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	XV-9160	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1 1/2"-V-9746	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1"-V-9745	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1/2"-V-9749	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1/2"-V-9750	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	ACS-EDUC-9101	TOX	Flange Connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1 1/2"-V-9023	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	XV-9180	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	SP-159C	TOX	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
ACS - Recirculation	1 1/2"-V-9401	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	SP-159A	TOX	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	ACS-PUMP-9400	TOX	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1/4"-V-9402	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1/4"-V-9403	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	SP-9886	TOX	Flange Connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	SP-159A	TOX	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1 1/2"-V-9400	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	XV-9170	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	SP-159B	TOX	Flex Connector	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1 1/2"-V-9748	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1"-V-9747	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1/2"-V9751	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	1/2"-V-9751	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Recirculation	ACS-EDUC-9101	TOX	Flange Connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	2"-V-114	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	ACS-PUMP-101	TOX	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-9005	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-9006	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PI-118	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PSV-102	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-112	TOX	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-113	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PI-43	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-108	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PCV-43	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
ACS - Feed to LICs	3/4"-V-109	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-110	TOX	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1/2"-V-118	TOX	Valve (blind flanged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	2"-V-95	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	ACS-PUMP-201	TOX	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-9002	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-9001	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PI-739	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PSV-738	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-93	TOX	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-9003	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-9004	TOX	Valve (blind flanged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-94	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PI-742	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-88	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PCV-735	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-89	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-90	TOX	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1/2"-V-119	TOX	Valve (blind flanged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	2"-V-117	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	ACS-PUMP-102	TOX	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-9007	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-9008	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS – Feed to LICs	2"-V-9009	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS – Feed to LICs	2"-V9010	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
ACS - Feed to LICs	PI-101	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PSV-103	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-115	TOX	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1"-V-116	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	XV-736	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	XV-737	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	FE-127A	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PIT-119 w/ isolation valve	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	FE-127B	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PSLL/LLL-112 w/valve	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	FV-127	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-20	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-21	LIC 1	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PI-112 w/ isolation valve	LIC 1	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PIT-112 w/ isolation valve	LIC 1	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	XV-134A	LIC 1	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1/2"-V-22	LIC 1	Valve (plugged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	XV-134B	LIC 1	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1/2"-V-23	LIC 1	Valve (plugged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-24	LIC 1	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	XV-104	LIC 1	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	LIC-FURN-101	LIC 1	Flexible connector to agent gun	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	FE-731A	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PIT-732 w/ valve	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	FE-731B	TOX	Flange connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PSLL-760/LLL-733 w/	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17-1:
TOCDF ACS Equipment Subject to 40 CFR 264 Subpart BB Requirements[1]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location[2]	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
	isolation valve					
ACS - Feed to LICs	FV-731	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-70	TOX	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-71	LIC 2	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PI-760 w/ isolation valve	LIC 2	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	PIT-760 w/ isolation valve	LIC 2	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	XV-761A	LIC 2	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1/2"-V-72	LIC 2	Valve (plugged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	XV-761B	LIC 2	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	1/2"-V-73	LIC 2	Valve (plugged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	3/4"-V-74	LIC 2	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	XV-204	LIC 2	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - Feed to LICs	LIC-FURN-201	LIC 2	Flexible connector to agent gun	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - To LIC AASS	1/2" BF	TOX	Blind Flange	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
ACS - To LIC AASS	1/2" BF	TOX	Blind Flange	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Notes:
1. Includes the equipment within the agent lines that encompass the following: (1) drain operations that occur in the ECRs and the MPB and the transfer lines that transfer waste to the Agent Collection System (ACS); (2) the Agent Quantification System (AQS); (3) the ACS tanks; and (4) the feed lines to the LICs. The AASS has been abandoned in place (capped/blinded off - manual sampling will be used instead.)

2. All of the equipment is located within rooms located in the MDB.

Table 17.1:

ATLIC GA/L Equipment Subject to 40 CFR 264 Subpart BB Requirements[3]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
GLBX-8501 GA/L	3/4"-V-8520	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8518	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8519	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
GA/L Feed	1/4"-V-8766	Igloo/Tox	Valve (Blind Flanged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
GA/L Feed	XV-8501	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
GLBX-8502 GA/L	3/4"-V-8566	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8567	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8568	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	1/4"-V-8770	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
GA/L Feed	XV-8502	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
GA Feed	3/4"-V-8620	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8866	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
Lewisite Feed	3/4"-V-8542	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8865	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	PUMP-8503	Igloo/Tox	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8543	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	1/2"-V-8544	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	1/2"-V-8545	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8546	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8547	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	PDIT-8517	Igloo/Tox	Flange connections w/ chemical seals	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17.1:

ATLIC GA/L Equipment Subject to 40 CFR 264 Subpart BB Requirements[3]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
-	FIL T-8507	Igloo/Tox	Basket Strainer	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8548	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	XV-8537	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8569	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
Lewisite Recirc	3/4"-V-8570	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8571	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	XV-8538	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8572	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8573	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8574	Igloo/Tox	Valve (Blind Flanged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	PUMP-8512	Igloo/Tox	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	1/4"-V-8577	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	1/4"-V-8576	Igloo/Tox	Valve (Blind Flanged)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8575	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8578	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
Lewisite Feed	3/4"-V-8874	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8875	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
GA Feed	3/4"-V-8876	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8877	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
GA/L Feed	3/4"-V-8671	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	PDIT-8672	Igloo/Tox	Flange connections w/ chemical seals	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17.1:
ATLIC GA/L Equipment Subject to 40 CFR 264 Subpart BB Requirements[3]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
	BS-8654	Igloo/Tox	Basket Strainer Flange Connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	PI-8671	Igloo/Tox	Flange connection w/ chemical seal	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	3/4"-V-8672	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	3/4"-V-8675	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	PUMP-8655	Igloo/Tox	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	PUMP-8656	Igloo/Tox	Pump	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	PSV-8678	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	PSV-8679	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	PI-8680	Igloo/Tox	Flange connection w/ chemical seal	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	PI-8690	Igloo/Tox	Flange connection w/ chemical seal	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	1/2"-V-8673	Igloo/Tox	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	1/2"-V-8676	Igloo/Tox	Check Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	1/2"-V-8674	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	1/2"-V-8677	Igloo/Tox	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	PCV-8682	Igloo/Tox	Pressure Control Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17.1:

ATLIC GA/L Equipment Subject to 40 CFR 264 Subpart BB Requirements[3]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
-	PSLL-8692	Igloo/Tox	Flange connection w/ chemical seal	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
GLBX-8501 Bypass Loop	3/4"-V-8514	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8515	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8862	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	PI-8660	Igloo/PB	Flange connection w/ chemical seal	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8861	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8860	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
GLBX-8502 Bypass Loop	3/4"-V-8563	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8562	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8871	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	PI-8662	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8870	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	3/4"-V-8869	Igloo/PB	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
Agent/Waste Feed	1/2"-V-8432	LIC Room	Valve (Drain)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	1/2"-V-8429	LIC Room	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	1/2"-V-8433	LIC Room	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	PIT-8430	LIC Room	Flange connection w/ chemical seal	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
-	1/2"-V-8434	LIC Room	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

Table 17.1:

ATLIC GA/L Equipment Subject to 40 CFR 264 Subpart BB Requirements[3]

Hazardous Waste Mgmt Unit	Equipment Tag No.	Location	Equipment Type	Organic Content (wt%)	Physical State	Method of Compliance with the Standards
	PSLL-8430	LIC Room	Flange connection w/ chemical seal	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	1/2"-V-8435	LIC Room	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	FE-8430	LIC Room	Flange Connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	XV-8431	LIC Room	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	1/2"-V-8437	LIC Room	Valve (Capped)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	XV-8432	LIC Room	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	1/2"-V-8438	LIC Room	Valve (Capped)	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	1/2"-V-8439	LIC Room	Valve	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)
	3/8"-FO-8436	LIC Room	Flange Connection	> 10%	Liquid	R315-8-18 (40 CFR 264.1058 and 1059)

3 Includes the equipment within the agent lines that encompass the following: (1) drain operations that occur in the ATLIC Glove boxes and the lines that transfer agent to the Lewisite Collection System (LCS); (2) the ATLIC Primary Combustion Chamber, and (3) the applicable LCS tanks (Lewisite storage tank only.

ATTACHMENT 19
INSTRUMENTATION AND WASTE FEED CUT-OFF TABLES

Consisting of:

Table D-1. Trial Burn Plans and Reports

Table D-5-1A, Liquid Incinerator #1 Process Data

Table D-5-2A. Liquid Incinerator #1 Automatic Waste Feed Cut-offs

Table D-5-1B. Liquid Incinerator #2 Process Data

Table D-5-2B, Liquid Incinerator #2 Automatic Waste Feed Cut-offs

Table D-6-1, Metal Parts Furnace Process Data

Table D-6-2. Metal Parts Furnace Waste Feed Cut-offs

Table D-7-1. Deactivation Furnace System Process Data

Table D-7-2. Deactivation Furnace System Automatic Waste Feed Cut-offs

Table D-8-1. Area 10 Liquid Incinerator (ATLIC) Process Data

Table D-8-2. Area 10 Liquid Incinerator (ATLIC) Automatic Waste Feed Cut-offs

Table D-8-1 ATLIC LIQUID INCINERATOR PROCESS DATA[a,b]

Item No	Control Parameter	Measuring Device	Location	Instrument Range	Expected Range
1	Waste Feed Rate to Primary Chamber 807-FT-8430	Mass Flowmeter Vibrating U-Tube Type	In-Line	0-1500 lbs/hr	0-210 lbs/hr GA 0-315 lbs.hr Lewisite
2	Waste Feed Atomizing Air Pressure 822-PSL-8410	Diaphragm	Plant Air Line prior to Primary Chamber Waste Feed Atomizing Nozzle	0-200psig	45-65 psig
3	Primary Chamber Exhaust Gas Temp 815-TT-8471	Thermocouple	Primary Chamber Outlet	212-3000 °F	2550-2800 °F
4	Secondary Chamber Spent Decon Feed Rate 829-FIT-8521	Rheotherm Flow Meter (a sensor and transmitter unit)	In-Line	100-1000 lbs/hr	100-525 lbs/hr
5	Secondary Chamber Spent Decon/Process Atomizing Air Press Waste Feed Interlock 822-PSL-8511	Diaphragm	Plant Air Line prior to Sec Chamber Waste Feed Atomizing Nozzle	12-100 psig	45-65 psig
6	Secondary Chamber Exhaust Gas Temp 815-TIT-8571	Thermocouple	Incinerator Outlet	32-2400 °F	1850-2200 °F
7	Exhaust Gas Flow Rate 819-FT-8932	TBD	In-Line prior to ID Fan	0-14,760 acfm	1000-2000 acfm
8	Pressure (STP pressure Correction) 819-PT-8932	Diaphram	In-Line prior to ID Fan	8-13 psia	10-11 psia
9	Temperature (STP Temperature Correction) 819-TT-8932	Thermocouple	In-Line prior to ID Fan	100-200° F	140-180° F
10[c]	Scrubber Delivery Pressure 819-PIT-8982	D/P Cell	In-Line	0-100 psig	30-80 psig
11a	Scrubber Tower #1 819-FIT-8921	Electro-Magnetic Flowmeter	In-Line	0-150 gpm	55-100 gpm
11b	Scrubber Tower #2 819-FIT-8922	Electro-Magnetic Flowmeter	In-Line	0-150 gpm	55-100 gpm
11c	Scrubber Tower #3 819-FIT-8923	Electro-Magnetic Flowmeter	In-Line	0-150 gpm	55-100 gpm
12a	Scrubber #1 Pressure Drop 819-PT-8911	D/P Cell	Scrubber Tower #1	0-70 in. W.C	1-5 in. W.C
12b	Scrubber #2 Pressure Drop 819-PT-8912	D/P Cell	Scrubber Tower #2	0-70 in. W.C	1-5 in. W.C
12c	Scrubber #3 Pressure Drop 819-PT-8913	D/P Cell	Scrubber Tower #3	0-70 in. W.C	1-5 in. W.C.
13	Brine to Venturi Scrubber 819-FIT-8924	Electro-Magnetic Flowmeter	In-Line	0-150 gpm	5-20 gpm
14	Venturi Delivery Pressure 819-PTI-8956	D/P Cell	In-Line	0-100 psig	30-80 psig
15	Venturi Scrubber Exhaust Gas Diff Pressure 819-PI-8915	D/P Cell	Venturi Scrubber	0-70 in. W.C	35-45 in. W.C
16	Venturi pH 819-AIT-8917	Electrodes	Venturi Sump	0 - 14 pH Units	7-9.5 pH
17	Venturi Specific Gravity 819-AI-8927	Magnetically Vibrated Tube	PAS Pump 8910 Discharge	0.6 - 1.4 SGU	0.9-1.20 SGU

Table D-8-1 ATLIC LIQUID INCINERATOR PROCESS DATA[a,b]

Item No	Control Parameter	Measuring Device	Location	Instrument Range	Expected Range
18	Scrubber Brine pH 819-AIT-8952	Electrodes	Common Sump	0 - 14 pH Units	7-9.5 pH
19	Brine Specific Gravity 819-AI-8983	Magnetically Vibrated Tube	PAS Pump 8908/8909 Discharge	0.6 - 1.4 SGU	0.9-1.20 SGU
20	Baghouse Temperature 819-TIT-8931	Thermocouple	Prior to Bag-house	0-300 °F	160-200 °F
21[c]	Baghouse Differential Pressure 819-PDIT-8936	D/P Cell	Baghouse	0-70 in. W.C	0.5-6 in. W.C.
22	Carbon Injection Feed Rate 819-FI-8933	TBD	Prior to Baghouse	TBD	TBD
23	Carbon Injection Air Flow Rate 819-FI-8940	TBD	Prior to Baghouse	TBD	TBD
24	Carbon Filter Diff. Pressure 819-PDI-8941/8942	D/P Cell	Carbon Filter Bed	0-70 in W.C	0.3-5 in W.C.
25[c]	Carbon Filter Inlet Temp 819-TT-8939	Thermocouple	Carbon Filter Bed Exit	0-300 °F	160-200 °F
26[c]	Blower Exhaust Gas CO 819-AIT-8302	Infrared Cell Analyzer	In-Line (Extractive)	0 - 200 & 0 - 5,000 ppm	0-100 ppm, one-hour rolling average, corrected to 7% O_2 dry volume
27[c]	Blower Exhaust Gas O_2 819-AIT-8301	Zirconium Oxide Cell Analyzer	In-Line (Extractive)	0 - 25%	3 - 15%
28[d,e,f]	Common Stack Exhaust Gas Agent TEN 708K	ACAMS/ MINICAMS	In-Line (Extractive)	0-512 SEL	0 - 1.0 SEL
29a[d,e,f]	Common Stack Exhaust Gas AgentTEN 709L	ACAMS/ MINICAMS	In-Line (Extractive)	0-512 SEL	0 - 1.0 SEL

Footnotes:

[a] Calibration information is shown in Attachment 6.

[b] Maintenance, at a minimum, in accordance with equipment manufacturer's recommendations

[c] Recorded upon activation or change in state of switch.

[d] ACAMS/MINICAMS (Automatic Continuous Air Monitoring System) – Agent monitors are portable gas chromatographs configured to detect airborne concentrations of agents GA and Lewisite. ACAMS and MINICAMS are used to monitor for GA and Lewisite respectively

[e] TEN 708 and TEN 709 are the TAG IDs for the sampling location. Two ACAMS are on-line with collocated DAAMS tubes at all times during GA operations. Four MINICAMS (two pairs) each pair consists of a primary and confirmation MINICAMS, each MINICAMS in a pair has a different analytical column

[f] SEL (Source Emission Limit)- Threshold values for the concentration of chemical agents in incinerator exhaust gases which have been established by the Surgeon General of the United States to protect human health and the environment. The SEL (in mg/m^3) for each agent is GA =0.0003, and Lewisite=0.03

TBD= These values will be incorporated prior to the final public period

Table D-8-2
ATLIC LIQUID INCINERATOR
AUTOMATIC WASTE FEED CUT-OFFS

Item No.	Tag Number	Process Data Description[1]	Setpoint[8]
1	807-FI-8430	Waste Feed Rate Greater Than or Equal to	≥ 325 lb/hr Waste Feed, one-hour rolling average
2	822-PI-8410	Agent Atomizing Air Pressure Less Than	< 35 psig
3	815-TIC-8471	Primary Chamber Temperature Less Than	< 2550° F, one-hour rolling average
4	829-FIT-8521	Spent Decon Feed Rate Greater Than or Equal to	≥ 452 lb/hr over one-hour rolling average
5	822-PI-8511	Spent Decon Atomizing Air Pressure Less Than or Equal to	≤ 35 psig
6	815-TIC-8571	Secondary Chamber Temperature Less Than	< 1850° F, one-hour rolling average
7	819-FT-8932	Exhaust Gas Flow Rate (Unit Production Rate) Greater Than or Equal to	≥2500 acfm, one-hour rolling average
8	819-PI-8982	Scrubber Brine Pump Pressure Less Than or Equal to	≤ 25 psig
9	819-FI-8921	Flow to Scrubber Tower #1 Less Than or Equal to	≤ 40 gpm, one-hour rolling average
10	819-FI-8922	Flow to Scrubber Tower #2 Less Than or Equal to	≤ 40 gpm, one-hour rolling average
11	819-FI-8923	Flow to Scrubber Tower #3 Less Than or Equal to	≤ 40 gpm, one-hour rolling average
12	819-PDI-8911	Scrubber #1 Pressure Drop Less Than or Equal to	≤ 0.3 in. w.c., one-hour rolling average
13	819-PDI-8912	Scrubber #2 Pressure Drop Less Than or Equal to	≤ 0.3 in. w.c., one-hour rolling average
14	819-PDI-8913	Scrubber #3 Pressure Drop Less Than or Equal to	≤ 0.3 in. w.c., one-hour rolling average
15	819-FI-8924	Brine to Venturi Scrubber Flow Less Than or Equal to	≤ 8 gpm one-hour rolling average
16	819-PI-8956	Venturi Pressure Less Than or Equal to	≤ 25 psig
17	819-PDI-8915	Venturi Exhaust Gas Pressure Drop Less Than or Equal to	≤ 12 in. w.c., one-hour rolling average
18	819-AIC-8917	Venturi Sump pH Less Than to Equal to	≤ 7 pH, one-hour rolling average
19	819-AI-8927	Venturi Specific Gravity Greater Than or Equal to	≥ 1.28 SGU, twelve-hour rolling average
20	819-AIC-8952	Scrubber Brine pH Less Than to Equal to	≤ 7 pH, one-hour rolling average
21	819-AI-8983	Brine Specific Gravity Greater Than or Equal to	≥ 1.28 SGU, twelve-hour rolling average
22	819-TI-8931	Bag House Inlet Temperature Greater Than or Equal to	≥ 240° F, one-hour rolling average
23	819-PDI-8936	Bag House Pressure Drop Less Than or Equal to	≤ 1 in. w.c., one-hour rolling average
24	819-FI-8933	Carbon Injection Feed Weight Less Than or Equal to	≤ .5 lbs/hr, one-hour rolling average
25	819-FI-8940	Carbon Injection Air Flow Less Than or Equal to	≤ TBD
26	819-PDI-8941 /8942	Carbon Filter Pressure Drop Less Than or Equal to	≤ 0.3 in. w.c., one-hour rolling average
27	819-TI-8939	Carbon Filter Inlet Temperature Greater Than or Equal to	≥ 240° F, one-hour rolling average
28	819-AIT-8302	Blower Exhaust CO Concentration Greater Than or Equal to	≥ 100 ppm, one-hour rolling average, corrected to 7% O_2, dry volume
29a	819-AAL-8301	Blower Exhaust Gas O_2 Less Than or Equal to	≤ 3% O_2
29b	819-AAH-8301	Blower Exhaust Gas O_2 Greater Than or Equal to	≥ 15% O_2

Table D-8-2
ATLIC LIQUID INCINERATOR
AUTOMATIC WASTE FEED CUT-OFFS

Item No	Tag Number	Process Data Description[a]	Setpoint[b]
30a	TEN 708AK	Stack Exhaust GA Agent Detect Greater Than or Equal to	≥ 0.5 SEL[d,e]
30b	TEN 708BK	Stack Exhaust GA Agent Detect Greater Than or Equal to	≥ 0.5 SEL[d,e]
30c	TEN 708CK	Stack Exhaust GA Agent Detect Greater Than or Equal to	≥ 0.5 SEL[d,e]
31a	TEN 709AL	Stack Exhaust Lewisite Agent Detect Greater Than or Equal to	≥ 0.4 SEL[d,e]
31b	TEN 709BL	Stack Exhaust Lewisite Agent Detect Greater Than or Equal to	≥ 0.4 SEL[d,e]
31c	TEN 709CL	Stack Exhaust Lewisite Agent Detect Greater Than or Equal to	≥ 0.4 SEL[d,e]
31d	TEN 709DL	Stack Exhaust Lewisite Agent Detect Greater Than or Equal to	≥ 0.4 SEL[d,e]
31e	TEN 709EL	Stack Exhaust Lewisite Agent Detect Greater Than or Equal to	≥ 0.4 SEL[d,e]
31f	TEN 709FL	Stack Exhaust Lewisite Agent Detect Greater Than or Equal to	≥ 0.4 SEL[d,e]
32	VOL-12HR-ATLIC	Volatile Metal (Hg) Greater Than or Equal to	≥ 0.70 lb/12 hr twelve-hour rolling average
33	SV-12HR-ATLIC	Semi-Volatile Metal (Pb+Cd) Greater Than or Equal to	≥ 0.001 lb/12 hr twelve-hour rolling average
34	LV-12HR-ATLIC	Low-Volatile Metal (As+Be+Cr) Greater Than or Equal to	≥ 1156 lb/12 hr twelve-hour rolling average
35	ASH-12HR-ATLIC	Ash Greater Than or Equal to	≥ 1536 lb/12 hr twelve-hour rolling average
36	MC-12HR-ATLIC	Chlorine Greater Than or Equal to	≥ 2298 lb/12 hr twelve-hour rolling average

Footnotes
[a] Logic code description used to set the control WFCO alarms
[b] Rolling average means the average of all one-minute averages over the averaging period. A one-minute average means the average of at least four detector responses over a 60 second interval
[c] Waste feed cut-offs recorded upon switch activation.
[d] The alarm setting (in mg/m^3) for each agent is: GA = 0.0005, and Lewisite = 0.012
[e] *An Automatic WFCO occurs if the two on-line ACAMS/MINICAMS are not staggered so that at least one unit is sampling the stack.*
TBD= These values will be incorporated prior the final public period.

ATTACHMENT #20

Continuous Emission Monitoring System (CEMS) Plans

Consisting of:

- CEM Certification Quality Assurance Program Plan, EG 033, Revision 8 Change ~~1~~3, ~~June 18, 2008~~ DSHW Approval Date incorporated by reference.
- CEMS Monitoring Plan, CDRL 06, Revision 8 Change 2 dated ~~June 18, 2008~~DSHW Approval Date, incorporated by reference.

CEM CERTIFIATION QUALITY ASSURANCE PROGRAM PLAN

EG 033
Rev 8
Change ~~1~~3

~~June 18, 2008~~DSHW Approval Date

This Plan has been incorporated in its entirety by reference.
A copy of this plan may be reviewed by contacting the Division of Solid and Hazardous Waste between the hours of 8:00 a.m. and 5:00 p.m. on business days.

CEMS MONITORING PLAN

CDRL 06
Rev 8
Change 2

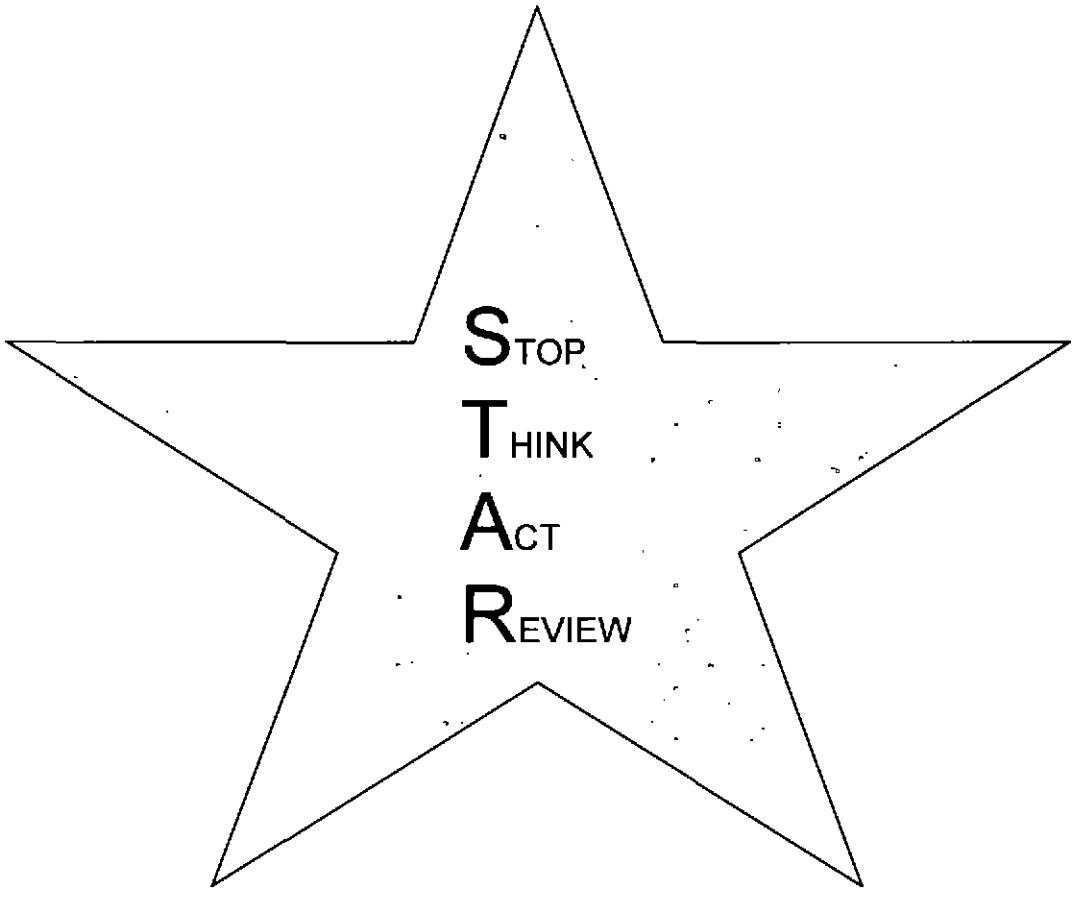
~~June 18, 2008~~DSHW Approval Date

This Plan has been incorporated in its entirety by reference.
A copy of this plan may be reviewed by contacting the Division of Solid and Hazardous Waste between the hours of 8:00 a.m. and 5:00 p.m. on business days.

CDRL 06

CEMS MONITORING PLAN

Rev. 8 Date: 19 Mar 08



Procedure Owner: Karl Scott[C2]
CEMS Specialist[C2]

Approved by: Gary McCloskey
General Manager

(Original signatures on file)

2.5 Certified analyzers have a certification tag attached to the front panel with the following information:

- Serial Number
- Quarterly Audit Due Date
- Quarterly Audit Completed Date
- Annual Audit Due Date
- "CERTIFIED"

2.6 The TOCDF has four separate incinerator systems that exhaust into a common stack. These four furnaces are monitored at the duct that feeds the effluent from each furnace into the stack. This design allows monitoring of the exhaust from individual furnaces rather than the combination of the exhaust from more than one furnace. ATLIC has one incinerator exhausting into one stack.[C2] Each furnace does, however, have its own pollution abatement system.

2.7 This plan includes detail about the location of all RCRA and Title V monitors as well as their sample points. This information is provided to show compliance with 40 CFR Part 60, 63 Subpart EEE, Part 266, and R307.

2.8 All CEMS and analyzers are connected electronically to a computer in the Control Room from which furnace operations are controlled. All analyzer auditing, calibration, repair, and preventive maintenance (PM) are performed by trained personnel.

3 REFERENCES

3.1 40 CFR Part 266

3.2 40 CFR Part 60

3.3 40 CFR Part 63 subpart EEE, App. A

3.4 **EG 033** - CEMS Quality Assurance Program Plan

3.5 ***EG 037*** – *CEMS Certification Test Protocol Plan*

3.6 **TOCDF RCRA Permit**

3.7 **TOCDF Title V Permit**

3.8 **Utah Air Conservation Rules R307**

4 ACRONYMS/DEFINITIONS

4.1 **ACA** - Absolute Calibration Audit

4.2 **AIT** - Analyzer Indicating Transmitter

4.3 **ATLIC** – Area 10 Liquid Incinerator[C2]

4.4 **CD** - Calibration Drift

4.5 **CDRL** - Contract Deliverable Requirements List

4.6 **CDTF** - Chemical Demilitarization Training Facility

4.7 **CEMS** - Continuous Emission Monitoring System

4.8 **CERMS** - Continuous Emission Rate Monitoring System

4.9 **CFR** - Code of Federal Regulations

4.10 **CO** – Carbon Monoxide[C2]

4.11 **DAQ** - Department of Air Quality

4.12 **DC** - Direct Current

4.13 **DCC** - Document Control Center

4.14 **DFS** - Deactivation Furnace System

4.15 **DSHW** - Division of Solid Hazardous Waste (State of Utah)

4.16 **EPA** - Environmental Protection Agency

4.17 **GA** - GA Nerve Agent[C2]

4.18 **GFC** -Gas Filtration Correlation[C2]

4.19 **IGS** - Inertial Gas Sampling

4.20 **IR** - Infrared

4.21 **L** - Lewisite[C2]

4.22 **LIC** - Liquid Incinerator

4.23 **LOP** - Laboratory Operating Procedure

4.24 **M&TE** - Measurement and Test Equipment

4.25 **MPF** - Metal Parts Furnace

4.26 **MSB** - Monitor Support Building

4.27 **NDIR** - Non-Dispersive Infrared[C2]

4.28 **NIST** - National Institute for Standards and Technology

4.29 **NO_x** - Nitrogen Oxides[C2]

4.30 **O_2** - Oxygen[C2]

4.31 **PAS** - Pollution Abatement System

4.32 **PDARS** - Process Data Acquisition and Recording System

4.33 **PLC** - Programmable Logic Controller

4.34 **PM** - Preventive Maintenance

4.35 **PPM** (ppm) - Parts per Million

4.36 **PSIG** (psig) - Pounds per Square Inch Gauge

4.37 **QA** - Quality Assurance

4.38 **QC** - Quality Control

4.39 **RCRA** - Resource Conservation and Recovery Act

4.40 **RMA** - Reference Method Audit

4.41 **SEDR** – State Electronic Data Report

4.42 **SOW** - Statement of Work

4.43 **TOCDF** - Tooele Chemical Agent Disposal Facility

4.44 **TSCA** - Toxic Substance Control Act

5 RESPONSIBILITIES

5.1 Monitoring Program Description

5.1.1 Organization

The monitoring mission at TOCDF includes requirements to provide continuous monitoring for regulated environmental pollutants. The personnel listed in the organization charts are responsible for CEMS monitoring operations. Monitoring and QC personnel furnish coverage 24 hours a day, seven days a week.

5.2 Duties and Qualifications

5.2.1 Monitoring Manager

5.2.1.1 Responsible for the successful operation of the CEMS program.

5.2.1.2 Ensures that personnel operate instruments and sampling systems provide reliable and accurate readings.

6.4.2 All analyzers used to monitor at compliance locations are certified, including spares. This allows them to be moved and replace malfunctioning compliance instruments. When a malfunctioning compliance CEMS instrument is replaced with a spare unit, the replacement unit will:

- Measure the same parameter
- Have the same operating range
- Have been certified
- Be calibrated before waste feed is started
- Have a Response Time Test completed before waste feed is started
- Have an Absolute Calibration Audit (ACA) completed before waste feed is started

6.4.3 At TOCDF[C2] there is a spare NOx analyzer operating at all times. However since both units share one probe and PDARS link, only one analyzer can monitor at a time.

Table 6.4-1. CEMS Operating Data (cont.)

LIC I Analyzers

Tag Number Analyte Purpose	Instrument Range	Expected Conc.	Accuracy	Set point	
AIT-78 CO RCRA	0-200 ppm 0-5000 ppm	0-15 ppm	6 ppm 150 ppm	100 ppm HRA*	
AIT-210 O_2 RCRA	0-25%	7-12%	0.5% O_2	LO 3	HI 15
AIT-83 CO RCRA	0-200 ppm 0-5000 ppm	0-15 ppm	6 ppm 150 ppm	100 ppm HRA	
AIT-229 O_2 RCRA	0-25%	7-12%	0.5% O_2	LO 3	HI 15

LIC 2 Analyzers

Tag Number Analyte Purpose	Instrument Range	Expected Conc.	Accuracy	Set point	
AIT-716 CO RCRA	0-200 ppm 0-5000 ppm	0-15 ppm	6 ppm 150 ppm	100 ppm HRA	
AIT-717 O_2 RCRA	0-25%	7-12%	0.5% O_2	LO 3	HI 15
AIT-778 CO RCRA	0-200 ppm 0-5000 ppm	0-15 ppm	6 ppm 150 ppm	100 ppm HRA	
AIT-798 O_2 RCRA	0-25%	7-12%	0.5% O_2	LO 3	HI 15

The CO and O_2 analyzers are specified by 40 CFR, part 266, 60, and 63.
Set points are derived from the RCRA Permit and the Title V Operating Permit.
Expected concentrations are determined from data seen at TOCDF.
*HRA – Hourly Rolling Average.

GA/L Furnace[C2]

Tag Number Analyte Purpose	Instrument Range	Expected Conc.	Accuracy	Set point	
AIT-8301 O_2 / RCRA	0-25%	7-12%	0.5% O_2	LO 3	HI 15
AIT-8302 CO / RCRA	0-200 ppm 0-5000 ppm	0-15 ppm	6 ppm 150 ppm	100 ppm HRA	
AIT-8304 O_2 NO_x / Title V	0-1000 ppm	30-100 ppm	25 ppm	100 ppm	

Table 6.5-1. CEMS Data (continued)

CEM TAG	ANALYTE	CEM PURPOSE	FURNACE SYSTEM	UPSTREAM INTERFERENCE DISTANCE DIAMETERS/ INCHES		DOWNSTREAM INTERFERENCE DISTANCE DIAMETERS/ INCHES		DUCT/STACK INSIDE DIAMETER (INCHES)	ANALYZER LOCATION ROOM NUMBER
24 AIT 669	CO	RCRA	MPF	1.8	49.5	4.6	127.5	27.5	75-261
24 AIT 670	O_2	RCRA	MPF	1.8	49.5	4.6	127.5	27.5	75-261
14 AIT 384	CO	RCRA	MPF	1.9	54	10.2	123	27.5	75-261
14 AIT 082	O_2	RCRA	MPF	1.9	54	10.2	123	27.5	75-261
24 AIT 9076	H_20	Title V	COMMON STACK	2	168	2.1	188	84	75-461
24 AIT 076 24 AIT 076B	NO_X	Title V	COMMON STACK	2	168	2.1	180	84	75-461
24 AIT 9913	Flow Meter	Title V	COMMON STACK	1	89	1.05	90	84	75-461
24 AIT 9914	Flow Meter	Title V	COMMON STACK	1	89	1.05	90	84	75-461
AIT-8302[C2]	CO	RCRA	GA/L	TBD	TBD	TBD	TBD	TBD	TBD
AIT-8301[C2]	O_2	RCRA	GA/L	TBD	TBD	TBD	TBD	TBD	TBD
AIT-8304[C2]	NO_X	RCRA	GA/L	TBD	TBD	TBD	TBD	TBD	TBD

c. The current cell temperature

d. The current error status (only in the event of a system malfunction)

6.6.3 CO/O_2 Intergrated Unit[C2]

1) Manufacturer: [C2]

2) CO: Teledyne Advanced Pollution Instrumentation [C2]

3) Model: 300EM [C2]

4) O_2: Servomex [C2]

5) Model: 1158Pm [C2]

6) Measurement Principle: [C2]

7) CO: Non-Dispersive infrared (NDIR) [C2]

8) O_2 Paramagnetic [C2]

9) Operating Range: [C2]

10) CO: Range One: 0-200ppm [C2]

Range Two: 0-5000ppm [C2]

11) O_2: 0-25% [C2]

12) Theory of Operation [C2]

This configuration includes a Teledyne 300EM CO analyzer already described in Section 6.6.1, however the analyzer platform also includes a Servomex Paramagnetic Oxygen analyzer (Teledyne Option 65). [C2]

Regular sample gas goes into the CO chassis and is split between the CO and O_2 detectors. O_2 concentration is based on the changes in the detector's magnetic field due to the magnetic properties of O_2. Changes are measurable and correlate to the concentration of O_2 in the sample stream.[C2]

Oxygen analyzer operation, calibration, and diagnostics are all performed and controlled via the front panel of the CO analyzer chassis using the same operating format at the CO analyzer.[C2]

HAND DELIVERED

JAN 17 2010

UTAH DIVISION OF
SOLID & HAZARDOUS WASTE
2010.00067

DEPARTMENT OF THE ARMY
US ARMY CHEMICAL MATERIALS AGENCY
TOOELE CHEMICAL AGENT DISPOSAL FACILITY
11620 STARK ROAD
STOCKTON, UTAH 84071

REPLY TO
ATTENTION OF:

January 7, 2010

Tooele Chemical Agent Disposal Facility PM0012-10

SUBJECT: Class 3 Permit Modification Request TOCDF-A10-03-1092 Titled Install and Operate Area 10 Incinerator, EPA ID No. UT5210090002

Mr. Dennis Downs, Director
Utah Department of Environmental Quality
Division of Solid and Hazardous Waste
288 North 1460 West
Salt Lake City, Utah 84116-0690

Dear Mr. Downs:

Please find enclosed three complete sets of the Class 3 Permit Modification Request titled Install and Operate Area 10 Incinerator. Each set of the modification request consists of five binders; one Permit Modification Request binder and four attachments.

Attachment 1 is the Area 10 Incinerator (ATLIC) Surrogate Trial Burn (STB) Plan. Attachment 2 is the ATLIC Lewisite Comprehensive Performance Test (LCPT) Plan. Attachment 3 is the Final Report for Ton Container Sample Analysis, October 2, 2009, and Addendum to the final report for Ton Container Sampling dated November 17, 2009 and Attachment 4 is a binder consisting of the facility and process and instrument drawings (P&IDs).

Two performance tests are planned for the ATLIC. The first test plan that will be executed is the ATLIC STB. This test will demonstrate the ability of the ATLIC to meet the RCRA Permit Destruction and Removal Efficiency (DRE) performance standard by destroying organic compounds having a high degree of incineration difficulty.

The LCPT will be executed shortly after the STB. The purpose of the ATLIC LCPT is to demonstrate compliance with the RCRA Permit Dioxin, Metals, Particulate, and Hydrogen Chloride (HCl) Emission Standards during the processing of Lewisite which will result in higher feed rates of arsenic, mercury, and ash to the ATLIC than during the STB.

PM0012-09

If you have any questions regarding this issue, please contact Ms. Sheila R. Vance at (435) 833-7577 or Mr. Trace Salmon at (435) 833-7428.

Sincerely,

Elizabeth A. Lowes
EG&G Defense Materials, Inc.
*CERTIFICATION STATEMENT

Thaddeus A. Ryba, Jr.
TOCDF Site Project Manager
*CERTIFICATION STATEMENT

Enclosure

* I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

PUBLIC NOTICE

U.S. ARMY CHEMICAL MATERIALS AGENCY

EG&G Defense Materials — EG&G is a Division of URS

Tooele Chemical Agent Disposal Facility (TOCDF)

Located at the U.S. Army's Deseret Chemical Depot (DCD), Stockton, Utah

Class 3 Permit Modification Request:

TOCDF-A10-03-1092 *"Install and Operate Area 10 Incinerator"*

What is the permit modification about?	This permit modification, if approved, will allow TOCDF to build and operate a small Liquid Incinerator in Area 10 of the Deseret Chemical Depot (DCD) referred to as the Area 10 Liquid Incinerator (ATLIC). The incinerators will be used to process 4 ton containers of Agent GA and 10 ton container of Agent Lewisite and to rinse out 10 "Transparency" ton containers that are empty and assumed to have previously contained Lewisite. The total agent weight to be processed is approximately 30,000 pounds. The ATLIC will operate for approximately less than one year after which it will undergo a RCRA closure. The ATLIC is equipped with a state of the art Pollution Abatement System (PAS) specifically designed to remove the high concentrations of Arsenic and Mercury that will results from the incineration of Lewisite.
When is the Public Meeting?	A public information meeting on this permit modification request will be held at 6:00 p.m. on Wednesday, **February 3, 2010**, at the Tooele Chemical Stockpile Outreach Office, 54 South Main Street, Tooele, Utah, 84074.
Where can I find a copy of this permit modification request?	A copy of this permit modification request (which includes incinerator performance test plans) is available for review by the general public during regular business hours at: →**Tooele Chemical Stockpile Outreach Office,** 54 South Main St., Tooele, UT 84074 →**Tooele City Library,** 128 W. Vine Street, Tooele, UT 84074 →***Utah Division of Solid and Hazardous Waste Offices (DSHW, Dept. of Environmental Quality),*** 288 North 1460 West, Salt Lake City, UT 84116 *Copies of the performance test plans are available for review by the general public* during regular business hours at: →**Utah Division of Air Quality (DAQ, Dept of Environmental Quality),** 150 North 1950 West (Building #1) 84114-4820
Who can I talk to about this?	The TOCDF point of contact is Mr. Trace Salmon at (435) 833-7428. The Permittees' (U.S. Army Chemical Materials Agency/EG&G Defense Materials) compliance history during the life of the permit being modified is available from the State of Utah contact Mr. Tom Ball of the Utah Division of Solid and Hazardous Waste at (801) 538-7079. Additionally because performance testing of the ATLIC is regulated by both the Resource Conservation and Recovery Act (RCRA) and Clean Air Act (CAA) regulations interested parties may also contact Mr. Joseph Randolph of the Utah Division of Air Quality at (801) 536-4173.
How long is the comment period?	The first public comment period for this permit modification request lasts a minimum of 60 days and begins **Thursday, January 7, 2010 and will end on Monday, March 8, 2010**. Written comments regarding this permit modification request can be submitted to Mr. Dennis Downs, Director, Division of Solid and Hazardous Waste, State of Utah Department of Environmental Quality, 288 North 1460 West, P.O. Box 144880, Salt Lake City, UT. 84114-4880, and must be received no later than 5:00 pm, Monday, March 8, 2010.

This public notice satisfies requirements of the Resource Conservation and Recovery Act and the Utah Hazardous Waste Management Rules (Utah Administrative Code R315).