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Resource Conservation and Recovery Act (RCRA)

Hazardous Waste Storage & Treatment Permit Renewal Request, Explosive Destruction Technology (SDC 1200)

for the Blue Grass Chemical Agent-Destruction Pilot Plant
Blue Grass Army Depot, Richmond, Kentucky

Submitted to:

Energy and Environment Cabinet
Kentucky Department for Environmental Protection
Division of Waste Management
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This document has been reviewed for CUI, and CUI-sensitive information has been removed.

This document has been reviewed for ITAR/EAR, and ITAR/EAR-sensitive information has been removed.

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Acronyms/Abbreviations

Acronym	Definition
ACWA	Assembled Chemical Weapons Alternatives
AEL	Airborne Exposure Limit
BGAD	Blue Grass Army Depot
BGCA	Blue Grass Chemical Activity
BGCAPP	Blue Grass Chemical Agent-Destruction Pilot Plant
BPBG	Bechtel Parsons Blue Grass
BTRA	Bounding Transportation Risk Assessment
CCTV	closed-circuit television
CFR	Code of Federal Regulations
CLA	Chemical Limited Area
CON	control room
DA	Department of the Army
DAAMS	depot area air monitoring system
DC	Detonation Chamber
DOD	Department of Defense
DOT	Department of Transportation
DWM	Division of Waste Management {pertains to KDEP}
EA	Environmental Assessment
EB	Enclosure Building
ESM	EDT Storage Magazine
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ERT	Emergency Response Team
HAZMAT	hazardous material
HAZWOPER	hazardous waste operations and emergency response
HEPA	high-efficiency particulate air (filter)
HVAC	heating, ventilating, and air-conditioning
HWMU	hazardous waste management unit
HWSU	hazardous waste storage unit
ICS	Incident Command System
ID	induced draft
JM&LLCMC	Joint Munitions and Lethality Life Cycle Management Command
KAR	Kentucky Administrative Regulation
KDEP	Kentucky Department for Environmental Protection
KRS	Kentucky Revised Statute
LAMP	Laboratory Analysis and Monitoring Plan
LDR	Land Disposal Restriction
M&EB	material and energy balance
mg/m3	milligrams per cubic meter

MHE	material handling equipment
MINICAMS®	trade name for a near real-time continuous air monitoring system
NEPA	National Environmental Policy Act
OB/OD	open burning/open detonation
OJT	on-the-job training
OPSEC	operations security
OSIC	On Scene Incident Commander
OSHA	Occupational Safety & Health Administration
OTS	off-gas treatment system
P&ID	piping and instrumentation diagram
PCB	polychlorinated biphenyl
PFD	process flow diagram
PLC	programmable logic controller
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
RQ	reportable quantity
SCO	Scene Control Officer
SDC	Static detonation chamber
STEL	short-term exposure limit
TCLP	toxicity characteristic leaching procedure
THO	thermal oxidizer
TSDF	treatment, storage, and disposal facility
U.S.	United States (of America)
UPS	uninterruptible power supply
VSL	vapor screening level
WAP	waste analysis plan
WPL	worker population limit

Part A: United States Environmental Protection Agency RCRA Subtitle C Site Identification Form and Part A form (EPA Form 8700-12, 8700-13 A/B, 8700-23), and Commonwealth of Kentucky Part A Addendum Form (DWM Form 7058A)

Part B: Facility Description [401 KAR 39:060, Section 5 & 40 CFR 124 and 270]

The Blue Grass Chemical Agent Destruction Pilot Plant (BGCAPP) was constructed by the Department of Defense (DOD) and United States (U.S.) Army for the purpose of destroying chemical agent filled munitions stored at the Blue Grass Army Depot (BGAD). The stockpile of chemical agent items at BGAD have been successfully destroyed and the facility has entered the RCRA closure phase. There are permitted container storage areas that remain in use at the SDC 1200 facility. This request is for the renewal of the Hazardous Waste Storage & Treatment Permit for Explosive Destruction Technology (SDC 1200) located at the Blue Grass Army Depot (BGAD) to facilitate closure activities.

In accordance with 401 KAR 39:060, Section 5 & 40 CFR 270.14(b)], Section B-1 provides the general description of the SDC 1200 system and an overview of the treatment operations proposed for the chemical munitions and munition components at BGAD or generated from BGCAPP operations.

B-1: General Description [401 KAR 39:060, Section 5 & 40 CFR 124 and 270]

The SDC 1200 Facility is located near the BGCAPP Main Plant north of the Container Handling Building (CHB) within BGAD. A detailed description of the SDC 1200 Facility location inside of BGAD can be found in Section B-3. The facility was designed for destruction and treatment of chemical munitions and munition components which are either explosively or non-explosively configured.

The SDC 1200 facility has completed its weapons treatment and destruction activities and is currently undergoing closure. The remaining active units include the permitted container storage areas. These units are being utilized to facilitate waste storage and offsite disposal of closure waste and secondary waste.

This permit renewal is being prepared to facilitate closure activities and storage of SDC 1200 process and closure wastes for off-site disposal.

The hazardous wastes managed or generated at the SDC 1200 Facility includes:

1. Scrap Metals
2. Miscellaneous Contaminated Maintenance Waste
3. Agent-derived liquid, solid and sludge wastes generated in the OTS by
    a. Quench
    b. Neutral Scrubber
    c. Separator condensate
    d. Electrostatic Precipitator
4. Laboratory Wastes
5. SDC Chamber Residue
6. Agent or Explosive Contaminated Wastes
7. Buffer Tank Residues
8. Cyclone Dusts and Residues
9. Spent Decontamination Solution
10. Carbon Filters, Pre-Filters and HEPA Filters

Detailed descriptions of the chemical agents and other wastes generated are provided in Section C-1, “Chemical and Physical Analysis.”

The hazardous waste management unit addressed in this section of the permit renewal is considered a Miscellaneous Unit (40 Code of Federal Regulations (CFR) 264 Subpart X). Wastes generated during SDC operations are accumulated in containers in the SDC Enclosure Storage Area and Bleed Water Tank system. The containers will be stored in permitted storage areas within the SDC 1200 SDC Storage Area, EDT Service Magazine, and OTS Storage Area. A detailed description of these units and the operations to be conducted at the SDC 1200 Facility is provided in Section D.

B-2: Topographic Map [401 KAR 39:060, Section 5 & 40 CFR 124 and 270]

Located in Volume II is a topographic map of BGAD and surrounding area showing the general location of BGAD. This map (supplemented by the other figures identified below) contains the features described below.

B-2a: Map Scale, Orientation, and Date Prepared

Due to the size of the facility and the need to show surrounding areas in these figures, BGAD is requesting that Kentucky Department for Environmental Protection (KDEP) approve the alternative map scale in this Permit Renewal Request.

Figure B-1 contains a north arrow and the date the figure was prepared.

B-2b: Contour Lines

Each contour line on figures in this Permit Renewal represents a change in elevation of 20 feet. These contour lines are sufficient to show surface water flow near the SDC 1200 Facility.

B-2c: 100-Year Floodplain

The SDC 1200 Facility is located within the Flood Insurance Program Zone X. This zone represents areas outside those affected by 500-year flood events, and therefore is not part of the 100-year floodplain. A portion of the Flood Insurance Rate Map for Madison County (i.e., showing the immediate vicinity of the facility) is included as Figure B-2 located in Volume II.

B-2d: Surface Waters

Figure B-1 displays major surface water features in blue and the dry weather and intermittent streams on BGAD and in the lower areas near the SDC 1200 Facility and BGCAPP Main Plant.

B-2e: Surrounding Land Use

BGAD surrounds the SDC 1200 Facility, and the U.S. Army currently uses BGAD primarily for industrial and related activities that are associated with the storage and maintenance of conventional and chemical munitions. The installation includes a variety of buildings, structures, and undeveloped areas, with over 1,100 structures located on BGAD.

Land use around BGAD should remain relatively constant in the future, with agriculture remaining an important land use. Madison County contains more than 1,400 farms covering more than 218,000 acres [U.S. Department of Agriculture (USDA) and KY 2007 Agriculture Census database]. The main trend emerging in the area near BGAD is the conversion of small blocks of farmland to residential and light industrial use. Depending on economic conditions and

the success of industrial parks located near BGAD, this trend, coupled with increasing residential development and use, will probably continue in coming years.

B-2f: Wind Rose

Figure B-3 displays a 5-year wind rose for BGAD. The highest wind velocities and most prevalent wind directions are from the southwest quadrant to the northeast quadrant. The nearest BGAD northeast quadrant boundary is approximately one mile from the SDC 1200 Facility.

B-2g: Legal Boundaries

Figure B-1 shows the boundaries for the BGCAPP Main Plant, SDC 1200, and the SDC 2000 Facility within BGAD.

B-2h: Location of Access Control

Figure B-1 located in Volume II shows the BGAD entrance for the BGCAPP Main Plant. This access point is through a BGAD-controlled gate located along Highway 52. All personnel proceeding beyond this point are required to show U.S. DOD-issued photo identification passes. The access to the SDC 1200 Facility requires entry through the Entry Control Facility (ECF) located on the perimeter of the chemical limited area (CLA) used for chemical agent processing within the facility are fenced and closely monitored. The U.S. Army authorizes use of force to prevent unauthorized entry.

B-2i: Onsite and Offsite Injection and Withdrawal Wells

Injection or withdrawal wells are not located near the SDC 1200 Facility.

B-2j: Buildings/Structures

Figure B-4 located in Volume II shows the buildings and structures associated with the SDC 1200 Facility.

B-2k: Sewers and Outfalls

There are no SDC 1200 Facility sewers designed to carry process wastes. The BGAD wastewater treatment plant provides treatment of the sanitary wastewaters prior to discharge to the surface waters of the Commonwealth.

B-2l: Loading and Unloading Areas

B-2m: Fire Control Facilities

Fire control facilities provided for the SDC 1200 Facility include a sprinkler system inside the facility and fire hydrants accessible to responding fire personnel.

B-2n: Flood Control or Drainage Barriers

The SDC 1200 Facility is located in Flood Zone X and is not part of the 100-year floodplain which is an area of remote flood hazard that is determined to be outside the 500-year flood plain. Given its location within the flood zone, flood control barriers have not been provided. Storm water drains to a detention pond where it is transferred through a pipe under the access road to the area north of the Waste Transfer Station (WTS).

B-2o: Runoff Control Systems

The BGCAPP Main Plant provides runoff control via a storm water collection and discharge system. This system consists of the facility storm sewers and storm water discharges. The detention basin collects and controls SDC 1200 and BGCAPP Main Plant runoff.

B-2p: Locations of Hazardous Waste Units

Figure B-4 located in Volume II identifies the location of the SDC 1200 Facility. Hazardous waste cleanup areas or hazardous waste disposal areas do not exist within the facility boundaries.

B-2q: Access and Internal Roads

The initial access road to the SDC 1200 Facility is via KY Highway 52 as shown on Figure B-1 and Figure B-7. Internal BGAD roads used for transport of materials and waste are discussed later in this Part.

B-3: Location Information [401 KAR 39:090 Section 1; 39:060 Section 5 & 40 CFR 124, 264, and 270]

B-3a: Geological Information

This section addresses the geology of the area upon which the SDC 1200 Facility is located, to include the seismic characteristics, subsurface geology, and karst features of the area.

B-3a(1): Seismic Consideration

Madison County, Kentucky, in which the SDC 1200 Facility is located, is not listed in the 401 Kentucky Administrative Regulations (KAR) 34:340 list of counties for which seismic standards apply. A minor fault (Tate Creek Fault) lies approximately 1,500 feet to the south of the facility and southern boundary of BGCAPP Main Plant and Figure B-5 in Volume II identifies its location. One of the largest earthquakes in the eastern United States was about 25 miles northeast of BGAD at Sharpsburg, Kentucky, in 1980. The focus of the earthquake was at a depth of about 10 miles and had a maximum Modified Mercalli Intensity of VII in the epicenter region. An earthquake of this intensity in the storage area of the CLA would be expected to produce some damage to masonry and could likely cause collapse of some palletized munitions, but it would be unlikely to directly damage the hazardous waste storage unit (HWSU) storage structures. The Sharpsburg earthquake did not result in any recorded damage in the storage area of the CLA.

Based upon this information, further action is not required to demonstrate compliance with the RCRA seismic standard.

B-3a(2): Subsurface Geology and Karst

A Department of the Interior United States Geological Survey, Geologic Quadrangle, Moberly Quadrangle is included as Figure B-5 located in Volume II. The subsurface consists of limestone, dolomite, shale, and recent alluvium. The Ashlock Formation (Ordovician) divides into upper and lower although both are predominantly limestone. The Ashlock occurs in the central and western part of BGAD. The Drakes Formation, Upper Ordovician, is dolomite and prevails throughout the installation. The Brassfield Dolomite (Lower Silurian) occurs in small areas along the southeast boundary. Silurian and Devonian rocks, composed of shale and dolomite, occur as small remnants along the southeast boundary. Recent deposits consisting of clay and silts floor the drainage ways. Figure B-6 located in Volume II identifies the soil types.

The Drakes Formation, made up of dolomite, limestone, and shale, underlies most of BGAD and the area around the SDC 1200 Facility and BGCAPP Main Plant. The lower part of the Ashlock Formation is beneath a small portion of BGAD (near the western boundary).

Although limestone and dolomite primarily underlie BGAD, Karst topographic features are not well developed or widespread. High content of clay in the limestone has limited solution weathering. In addition, the SDC 1200 Facility design incorporates features that prevent release of contaminated liquids into the underlying geology.

B-3b: Floodplain Requirements

A portion of the Flood Insurance Program Map for Madison County is included in Volume II as Figure B-2. This map clearly shows the SDC 1200 Facility is not part of the 100-year floodplain.

B-4: Traffic Information [401 KAR 39:060, Section 5 & 40 CFR 124, and 270]

The transport of hazardous waste is performed using motorized vehicles only. Hazardous waste is transported both into and away from the SDC 1200 Facility either over existing BGAD paved roads or Kentucky highways. During hazardous waste processing, material handling equipment (MHE) will be used to move munitions.

B-4a: Estimated Traffic Volume (number, type of vehicles)

Personnel will transport munitions to the SDC 1200 storage magazine from permitted HWSUs or directly from the BGCAPP Main Plant during daylight hours. However, movement of munitions and munition components from the SDC 1200 storage magazine to the SDC 1200 Facility for processing will potentially occur during nighttime hours.

In addition to transport of chemical weapons/agent, transport of other hazardous wastes will be within the CLA or north on the access road to KY Highway 52 (see Figure G-1) for offsite transport. During operations, an estimated additional 40-50 privately owned vehicles would enter and leave from the Main Plant parking area each workday. This additional traffic due to privately owned vehicles will occur seven days per week and twice per day for the 12-hour shift changes. Each day, it is expected one or two trucks will carry waste materials from the facility. The trucks that will be used in scrap metal/waste transport include flatbeds, box trucks, and various types of tractor/trailer/tanker or roll-off combinations.

B-4b: Traffic Pattern

The major highways serving the SDC 1200 Facility and BGCAPP Main Plant are I-75 (running north/south), KY Highway 52 (running east/west), and US 25 (running north/south). The main access is from KY Highway 52 by way of a 24-foot wide paved road with 10-foot shoulders. Facility personnel and other authorized vehicles use this road to access the BGCAPP site. The outward movement of all hazardous wastes is to KY Highway 52. Access to this highway supports operations at the BGCAPP Main Plant and vehicular traffic to the personnel parking area at the SDC 1200 Facility. The road enters the mid-northern boundary of BGAD.

Access to the SDC 1200 Facility requires entry into BGAD, which is controlled by the U.S. Army.

Volume II, Figure B-7 displays traffic patterns for facility hazardous wastes, materials, and personnel. Hazardous wastes are transported from the SDC 1200 Facility to KY Highway 52 for offsite transport to appropriately permitted, commercial treatment, storage, and disposal facilities (TSDFs).

B-4c: Traffic Control Signals

Several methods and signals control traffic on BGAD and at/around the SDC 1200 Facility:

1. All major road intersections have traffic control gates and stop signs.
2. All secondary road intersections have stop signs or yield signs.
3. Speed limits are well posted.
4. A stop light, installed at the intersection of KY Highway 52 and the access road at the entrance to the site, controls the safe flow of vehicle traffic into and from the site entrance.
5. The Restricted Area through which personnel and vehicles enter BGCAPP is an area with guards controlling access.
6. The CLA is an area used to control access to chemical agent and chemical-filled munitions by personnel and vehicles proceeding into and around the SDC 1200 Facility.

B-4d: Access Road(s) Surfacing and Load-bearing Capacity

The main access road is, in general, flat terrain with Class E roads. The construction of the access road meets the technical requirements set by the U.S. Army Corps of Engineers. The roads have 10-foot-wide lanes with a minimum cross-slope of 2 percent and 6-foot-wide gravel shoulders with a minimum cross slope of 6 percent.

The maximum load assumed for design is the American Association of State Highway Transportation Officials HS-20 loading 18,000-pound maximum axle load, 32,000-pound maximum axle group, and 72,000-pound maximum vehicle weight.

Stop and yield signs within and around BGCAPP and the SDC 1200 Facility control traffic flow. Personal vehicles are not allowed within the Restricted Area or CLA and vehicular traffic in this area is limited. Government vehicles that transport facility personnel are parked in designated parking, and do not interfere with traffic flow within the fenced facility.

B-5: Requirements for Applicants for Construction Permits [401 KAR 39:060, Section 5 and KRS 224.46-520(1)]

The need to reduce the risk presented by the aging chemical munitions and the hazards associated with worker entry into agent contaminated areas itially prompted the RCRA Permit Modification Request. An Environmental Assessment (EA) was prepared and released for public comment by the U.S. Army for this significant federal action as required by the National Environmental Policy Act (NEPA). The document provided analysis of the proposed action to construct and systematize an SDC 1200 Facility on BGAD to destroy munitions containing chemical nerve agents GB or VX. The EA also evaluated and determined the extent of any potential environmental impacts. The EA concluded there were not significant impacts associated with this proposed action. This EA analysis included assessment of:

1. Alternatives
2. Public health, safety, and environmental aspects
3. Social and economic impacts
4. Mitigation procedures
5. Relationship to local planning and development

The U.S. Army held a public meeting on to present the results of this EA, as well as solicit public comment and feedback on the document and the evaluation it contained. This public meeting was held in Richmond, Kentucky at the Blue Grass Chemical Stockpile Outreach Office on May 21, 2019. Copies of this EA are available in the public repositories located next to this Permit Renewal Request.

B-5a: Alternative Analysis Plan

The EA, described above, evaluated the alternatives, as described in Kentucky Revised Statute (KRS) 224.46-520, and the EA is proposed as an equivalent document.

B-5b: Specific Requirements for Incinerators and Disposal Facilities

The SDC 1200 Facility is not an incinerator or land disposal facility, so the respective Federal and Commonwealth of Kentucky requirements do not apply.

B-6: Past Compliance Record [401 KAR 39:060, Section 5]

The SDC 1200 Facility is a new treatment unit at BGAD and has not previously received any civil fines or significant deficiencies on environmental compliance inspections.

B-7: Financial Responsibility to Construct and Operate [401 KAR 39:060, Section 5, KRS 224.40-325 & 40 CFR 124, 264, and 270]

Bechtel Parsons Blue Grass (BPBG) Team is the organization contracted to design and construct the SDC 1200 Facility for the Government owner. The design and construction are under a Federal contract, located on land owned by the Federal government, and exempted as a Federal facility from providing financial assurance in accordance with 40 CFR 264.140(c) and as outlined in KRS 224.40-110.

B-8: Public Participation [401 KAR 39:060, Section 3 and 5 & 40 CFR 124, 261, and 270]

Due to federal, state and local guidelines for social distancing due to the coronavirus pandemic, there will not be an in -person public meeting. However, alternative options are available for members of the public who may have questions. BGCAPP personnel will be available to provide answers throughout the public comment period.

B-9: Fees [401 KAR 39:060, Section 6 and 401 KAR 39:120, & KRS 224.46-016 and 018]

An existing grant from Assembled Chemical Weapons Alternatives (ACWA) to KDEP includes monies to pay the fee for filing and review of this BGAD RCRA Permit Renewal. No additional monies are required.

Part C: Waste Analysis Plan [401 KAR 39:090, Section 1, 39:060, Section 4 and 5, & 40 CFR 264.13(a)-(c), 268 and 270.14]

This section discusses the chemical and physical characteristics of the wastes that are managed at the SDC 1200 Facility. Part C-1 introduces the chemical and physical properties of the wastes. Part C-2 presents the Waste Analysis Plan that details the methodologies for sampling, testing, and evaluating all wastes to ensure sufficient information is available for their proper characterization and safe management. This information also is used to ensure all wastes are treated in accordance with best-demonstrated available technology (BDAT) to maintain compliance with the land disposal restrictions (LDRs). Part C-3 addresses waste analysis requirements pertaining to LDRs.

C-1: Introduction

**SDC 1200 facility processing is complete, and the facility is undergoing closure. The only remaining active units at the time of this renewal are the permitted container storage areas. These units are needed for storage and management of closure generated waste and storage of VX munitions. The previous approved waste analysis plan is sufficient for the proper and full characterization of waste generated by closure activities.* The SDC 1200 Facility receives GB or VX munitions and munitions components for treatment. These wastes are received from permitted HWSUs, the SDC 1200 ECM, or the SDC 2000 Facility. The U.S. Army knowledge of munitions design and the composition of the explosives, energetics, agent, and munitions components that make up these wastes are comprehensive and adequate for acceptance and treatment of the munitions by the SDC 1200 Facility; Table C-4 “Composition of Agents GB or VX, Energetics, and Propellant: BGCAPP Design Criteria” provides details.

This Waste Analysis Plan (WAP) describes the procedures used to obtain chemical and physical information and data pertaining to the wastes to ensure proper storage, treatment, disposal, and compliance with the land disposal restrictions (LDR) requirements. It specifies the generator/process knowledge and/or analytical methods used to ensure the proper treatment and/or disposal of both the wastes received from BGAD and the wastes produced by BGCAPP (secondary wastes)*. This WAP describes the following:

1. Use of generator knowledge
2. Physical and chemical analyses and/or monitoring BGCAPP will conduct (if generator knowledge is insufficient to characterize a waste or waste stream) before hazardous wastes are stored, treated, or transported off site for further treatment and/or disposal
3. Frequency of sampling and analyses
4. Sample collection methods
5. Analytical methods
6. Quality assurance (QA) practices used to ensure the validity of the analytical results
7. How this information is used to ensure the proper storage, treatment, and/or disposal of hazardous wastes

The characterization criteria for each waste stream is based on process knowledge, analytical testing, previous analytical results obtained for similar waste streams at other chemical agent disposal facilities, and the homogeneity of the waste or DOD manufacturing specifications.

The evaluation or assessment process for chemical agent in wastes can involve physical sampling and chemical analysis, monitoring of the agent concentration in the air above the contained waste (i.e., headspace), or use of generator knowledge. Vapor Screening Level (VSL) determinations for waste are the result of headspace monitoring. Results of headspace monitoring are reported as less than or greater than or equal to one VSL (<1 or ≥1 VSL) or in multiples of the VSL (e.g., 5 VSL, 150 VSL). Agent contaminated waste generated at the SDC 2000 Facility will be characterized using these methods. These analyses will be used in conjunction with the Bounding Transportation Risk Assessment (BTRA) to assess whether a waste will be released for offsite shipment to an appropriately permitted, commercial TSDF or will be further treated or decontaminated and re-evaluated.

C-1a: Waste Stream Classification

C-1a(1): Process Wastes

The SDC 1200 System generates a variety of process waste streams while operating. These wastes will be characterized based on generator knowledge and/or sampling and analysis. Details of sampling and analysis methods available for characterization are included in Table C-2: Sampling Methods and Equipment and Table C-1: Facility Wastes Analysis Plan (WAP) Summary, respectively.

Process waste streams include:

C-1a(1)(a): Static Detonation Chamber (SDC) Residue

The Static Detonation Chamber is inactive. However, SDC residues still remain and will be properly disposed of in the closure phase. The Detonation Chamber (DC) provides containment during and following the processing of the chemical munitions. The materials remaining in the DC following deflagration or detonation include both metal fragments from the munition bodies, dusts, and residue. The metal fragments and residues from the deflagration/detonation of these items will be held at 1,000°F or greater for more than 15 minutes meeting Army treatment requirements for release to the general public. The dust and non-metal residues will be characterized based on generator knowledge and/or sampling and analysis as identified in Table 3-1. One or more of the following waste codes are potentially associated with this waste stream: D004, D005, D006, D007, D008, D009, D010, and/or D011, N001, and N002. Potential sampling and analysis methods used in support of characterization of this process waste are described in Table 3-1 respectively.

C-1a(1)(a): Buffer Tank Residues

The buffer tank receives large particles of ash and small metal fragments produced from the munitions destruction process. This waste is collected in a “buffer tank drum” for later disposal. In the event buffer tank residue is determined to be > 1VSL these munitions residues can be fed back into the SDC 1200 to re-treat the chemical agent and destroy the agent. One or more of the waste codes potentially associated with this waste stream include D004, D005, D006, D007, D008, D009, D010, D011, N001 and N002. Potential sampling and analysis methods used in support of characterization of this process waste are described in Table 3-1 respectively.

C-1a(1)(a): Cyclone Dust Residues and Filters

Dust and particulates are removed from the process ventilation system by the cyclone and filter. These wastes are primarily generated as a result of the SDC emptying process. Dusts is removed by both the cyclone and filter and is collected in drums located at the bottom of the respective units. One or more of the waste codes potentially associated with this waste stream include D004, D005, D006, D007, D008, D009, D010, D011, D022, N001 and N002. Potential

sampling and analysis methods used in support of characterization of this process waste are described in Table 3-1 respectively.

C-1a(1)(a): Liquids from Electrostatic Precipitator

This waste stream is a result of operation of the electrostatic precipitator of the off-gas treatment system. It is produced after the SDC effluent gas stream has been treated in the thermal oxidizer (THO). It is generated by flushing/wash-down of the wet electrostatic precipitator. The waste is primarily liquid with dissolved ionic salts and small quantities of solid particulates captured by the charged plates of the wet electrostatic precipitator. One or more of the waste codes potentially associated with this waste stream include D002, D004, D005, D006, D007, D008, D009, D010, and/or D011, N001 and N002. Potential sampling and analysis methods used in support of characterization of this process waste are described in Table 3-1 respectively.

C-1a(1)(a): Brine Liquids from Off-Gas Treatment System (OTS) Scrubbers

This waste stream is a result of operation of the OTS scrubbers in the off-gas treatment system. It is produced after the OTS gas stream has been treated in the THO. The brine waste is generated from the OTS Quench, recirculation of scrubber waters used in Neutral Scrubber and the liquid separator. This waste stream is primarily liquid with dissolved salts and suspended solids. One or more of the waste codes potentially associated with this waste stream include D002, D004, D005, D006, D007, D008, D009, D010, D011, N001, and N002. Potential sampling and analysis methods used in support of characterization of this process waste are described in Table 3-1 respectively.

C-1a(1): Secondary Wastes

Secondary waste streams produced are by-products of the SDC System processes and supporting activities (e.g., maintenance, laboratory analyses). These wastes include agent-contaminated or agent-derived wastes, as well as wastes that become a hazardous waste due to either a hazardous waste characteristic or listing (i.e., not agent-derived).

C-1a(1)(a): Miscellaneous Maintenance and Secondary Wastes

These waste materials and debris are generated as a result of SDC facility and system maintenance activities, as well as other secondary wastes from routine (e.g., calibration) and one-time activities (e.g., spill clean-up). They primarily consist of, but are not limited to, PPE, valves, pumps, gearboxes, conveyors, belts, piping, hoses, flanges, thermocouples, pH probes, nuts, bolts, gaskets, plastics, tools, equipment, munitions dunnage, oils, hydraulic fluids, paints, solvents, and other operations & maintenance wastes. Some of these wastes will be agent-contaminated, derived-from-KY listed wastes from contact with process wastes or process equipment contaminated with state listed wastes. Agent-contaminated wastes generated as a result of maintenance and operation of the facility will potentially be decontaminated for personnel protection. Decontamination processes will include the use of water with or without a surfactant/soap, a neutralizing solution, such as dilute sodium hydroxide (NaOH) solution, air sparging, or thermal treatment, such as steaming. Any decontamination that is performed will be IAW the requirements contained in DA PAM 385-61 and are referenced in Table C-5 in Volume II. Agent or explosives contaminated secondary wastes will potentially be thermally treated in the SDC 1200. These wastes are comprised of small metal objects or other industrial components that are deemed amenable for thermal treatment in the SDC. Non-metallic parts make up a very small percentage of the weight of these items. Objects will be fed in a standard munitions box into the detonation chamber following the same path as a munition item. For agent contaminated wastes that are not amenable to thermal treatment, chemical decontamination will occur in a monitored area in the SDC room, in a container 55 gallons or

smaller using appropriate decontamination solution such as water/surfactant, 20% NaOH or other approved decontamination solutions prior to off-site shipment to a permitted TSDF. The goal of the decontamination process is to reduce the agent contamination levels to meet the hazardous waste control limits established for solid or liquid hazardous waste outlined in the U.S. Army Public Health Command, Chemical Agent Health-Based Standards and Guidelines Summary Table 2: Criteria for Water, Soil, Waste, as of July 2011 (included in Volume II). Decontaminated solids will potentially be physically sampled and analyzed for agent content or alternatively will be reanalyzed via headspace monitoring. Liquids generated as a result of these processes will be physically sampled and analyzed for agent content. These site-specific analyses will be performed IAW the approved Laboratory Analysis and Monitoring Plan (LAMP), provided in Volume II. Wastes for which the desired decontamination levels have not been achieved will be decontaminated further or shipped off-site for further treatment and subsequent disposal. One or more of the waste codes potentially associated with this waste stream include D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D022, D026, D027, D028, D029, D030, D037, D039, D040, F001, F002, F003, F004, F005, N001, N002, N901, N902. Analysis will be limited to a particular hazardous waste number or series of numbers, such as toxicity characteristic leaching procedure (TCLP) metals or will be as extensive as necessary toadequately characterize and profile the waste. The disposal requirements will be based on generator knowledge and/or analytical results. The rationale for assignment of the applicable waste codes will be based on generator knowledge of the materials, processes generating the waste, and, as necessary, sampling and analysis.

C-1a(1)(a): Laboratory Wastes

Laboratory (LAB) liquid wastes generated will include, but are not limited to, neutralized chemical agent samples, neutralized process or secondary waste samples and various spent reagents and solvents. One or more of waste codes potentially associated with this waste stream include D001, D002, D003, D004, D005, D006, D007, D008, D010, D011, D018, D019, D022, D026, D027, D028, D029, D030, D037, D039, D040, F001, F002, F003, F004, F005, N001, N002, N701,N702, N801, N802, N901, N902. Potential sampling and analysis methods used in support ofcharacterization of this process waste are described in Table 3-1. The rationale for assignment of applicable waste codes will be based on generator knowledge of the materials and processes generating the waste and, as necessary, sampling and analysis..

C-1a(1)(b): Spent Decontamination Solution

Agent-contaminated waste will be generated during maintenance and operation of the Facility. This waste will potentially be decontaminated for personnel protection. This liquid waste stream is generated from activities involving decontamination of the facility (e.g., floors, airlocks), tools, equipment, PPE and other debris or materials contaminated with chemical agent GB or VX. This waste typically will exhibit a high pH due to sodium hydroxide. Potential decontamination processes include the use of water with or without a surfactant/soap, a neutralizing solution, such as sodium hydroxide (NaOH) solution, air sparging, or thermal treatment, such as steaming. Decontamination will be performed IAW the requirements contained in DA PAM 385-61. The goal of the decontamination process is to reduce the agent contamination levels to meet the hazardous waste control limits established for solid or liquid hazardous waste outlined in the U.S. Army Public Health Command, Chemical Agent Health-Based Standards and Guidelines Summary Table 2: Criteria for Water, Soil, Waste, as of July 2011. Spent decontamination liquids generated as a result of these processes will be physically sampled and analyzed for agent content. These site-specific analyses will be performed IAW the approved LAMP. Wastes for which the desired decontamination levels have not been achieved will be decontaminated further or alternatively shipped off-site for further treatment and subsequent disposal. One or more of the waste codes potentially associated with this waste stream include

D001, D002, D003, D004, D005, D006, D007, D008, D010, D011, D022, N001, N002, N901, N902. Potential sampling and analysis methods used in support of characterization of this process waste are described in Tables C-1 and C-2 respectively. The rationale for assignment of applicable waste codes will be based on generator knowledge of the materials and processes generating the waste and, as necessary, sampling and analysis.

C-1a(1)(c): Agent and/or Explosive Contaminated Waste

Agent and/or explosive contaminated wastes (solids) will be characterized by generator knowledge, headspace monitoring, and/or physical sampling and analysis. Agent and/or explosive contaminated wastes include but are not limited to secondary maintenance and operations wastes such as seals, valves, tools, PPE and other secondary wastes that will have been contaminated with chemical agent GB or VX agent resulting in elevated headspace levels (>1 VSL) or with energetics. These wastes will potentially require treatment in the SDC due to agent or energetics hazard of the material to ensure the final waste can be safely managed and shipped off site for disposal. One or more of the waste codes potentially associated with this waste stream include D001, D003, D004, D005, D006, D007, D008, D010, D011, N001, or N002. Potential sampling and analysis methods used in support of characterization of this process waste are described in Table 3-1. The rationale for assignment of applicable waste codes will be based on generator knowledge of the materials and processes generating the waste and, as necessary, sampling and analysis.

C-1a(1)(d): Carbon Filter, Prefilters and HEPA Filters

These wastes are generated from Ionex filter units when the filter unit carbon filters, prefilters or high efficiency particulate air (HEPA) filters are removed from service. The wastes will potentially be contaminated with GB or VX chemical agent. This determination is made based on a confirmed agent alarm of 1 VSL or greater by NRT and DAAMs monitoring of the filter bank while it is in use. One or more of the waste codes associated with this waste stream include D001, D003, D004, D005, D006, D007, D008, D010, D011, D022, N001, N002. The rationale for these waste codes is based on generator knowledge of the materials and processes generating the waste. Headspace monitoring and physical sampling and analysis for agent will not be used for the carbon filters due laboratory and monitoring method quality control issues experienced at other demilitarization sites. These wastes will be managed and disposed of in accordance with all federal and state regulations and Army requirements.

C-2: Waste Characterization [401 KAR 39:090 Section 1, 39:060 Section 4 and 5 & 40 CFR 264.13(a)–(c), 268, and 270.14]

The following section addresses the regulatory-required components of the SDC 1200 Facility WAP. These include analytical parameters, analytical test methods, sampling methods, frequency of analyses, and additional requirements for ignitable, reactive, or incompatible wastes.

Waste is delineated into four groups: waste munitions treated by the SDC 1200 facility, post treatment process waste generated as a direct output of the facility operations, secondary wastes, and maintenance and laboratory activities associated with operation of the facility as well as agent and PCB contaminated wastes received from the BGCAPP Main Plant. As the SDC 1200 facility does not receive waste from non-DoD sources, the properties and characteristics of the waste munitions to be treated are known with characteristics that are established sufficiently to allow treatment; no further testing will be performed on these wastes. The waste munitions' summary characterization data is included in Table C-4. Characterization

of the remaining two groups, process and secondary wastes, will rely on generator knowledge, sampling and analysis. The analysis chosen for a specific waste will be limited to a particular hazardous waste code or series of codes, such as TCLP metals, or be as extensive as necessary to adequately characterize the waste and identify applicable land disposal restrictions. The sampling and analysis methods identified and available for these waste streams are detailed in Table C-1 and Table C-2.

Table C-1 lists analytical methods, and Table C-2 identifies sampling methods used to obtain representative samples in support of characterization. Where necessary to supplement generator knowledge, initial sampling of process waste streams will be performed. A minimum of three waste samples will be collected and analyzed to characterize each process waste stream once the generating process is sufficiently stable. Resampling and analysis will be performed annually and if the process is changed or is suspected of changing. Liquids from secondary containment will be characterized using generator knowledge of the waste stored or generation method (e.g., containment of precipitation) and/or analysis as identified in Table C-1.

Chemical agent contamination determinations will be based on generator knowledge, chemical agent extractive analysis or chemical agent vapor monitoring (i.e. Headspace Monitoring). Chemical agent vapor monitoring for waste disposal characterization will only be performed on non-porous waste and will also be limited to objects that do not possess internal cavities. These conditions will allow for adequate vapor screening for characterization of agent contamination levels to determine appropriate treatment, disposal, and transportation requirements (e.g., <1 VSL or ≥1 VSL). Details of the chemical agent analysis and monitoring used for these determinations are detailed in the LAMP. Waste control limits identified in US Army Public Health Command (USAPHC) Chemical Agent Health-Based Standards and Guidelines Summary (July 2011) are also used in determination of waste disposal and shipment requirements. Shipment of wastes that exceed the USAPHC hazardous waste control limits (HWCL) in addition to wastes for which headspace monitoring results are ≥1VSL for GB and VX are subject to the requirements of the BTRA.

Polychlorinated Biphenyls (PCB)s are present in the shipping and firing tubes matrix at varying levels. The Army and EPA have agreed the mean PCB concentration of the shipping and firing tube material is 1247 ppm and the shipping and firing tubes are regulated under 40 CFR 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions. Requirements for management of these waste are contained in the BGCAPP Demonstration Approval for Storage and Treatment of Polychlorinated Biphenyl Bulk Product Wastes; this approval will be modified to include the activities conducted at the SDC 1200 facility.

Under certain conditions, BGCAPP will use total constituent analysis instead of TCLP analysis. This is commonly referred to as the "Rule of 20" and will only be used for solid wastes.

Section 1.2 of the TCLP does allow for a total constituent analysis in lieu of the TCLP extraction. If a waste is 100 percent solid as defined by the TCLP method, then the results of the total constituent analysis is divided by 20 to convert the total results into the maximum leachable concentration. This factor is derived from the 20:1 liquid to solid ratio employed in the TCLP. If a waste has filterable liquid, then the concentration of the analyte in each phase (liquid and solid) must be determined. The following equation is used to calculate this value:

$$\frac{[A \times B] + [C \times D]}{B + [20\ (L/kg) \times D]} = E$$

Where:

A = Concentration of the analyte in liquid portion of the sample (mg/L)

B = Volume of the liquid portion of the sample (liters [L])

C = Concentration of the analyte in solid portion of the sample (mg/kg)

D = Weight of the solid portion of the sample (kilograms [kg])

E = Maximum theoretical concentration in leachate (mg/L)

The value obtained in (E) can be used to show the maximum theoretical concentration in a leachate from the waste could not exceed the concentration specified in the toxicity characteristic (TC) (40 CFR 261.24).

In addition, if the total constituent analysis results themselves are below the TC limits without dividing by 20, then the same argument holds true (i.e., the maximum theoretical concentration in the leachate could not exceed the TC limits).

C-2a: Pre-Acceptance Phase [401 KAR 39:090 Section 1 & 40 CFR 264.12, 264.71]

Not applicable. Wastes received from onsite storage.

C-2b: Acceptance Phase [401 KAR 39:090 Section 1 & 40 CFR 264.13, 264.71]

Not applicable. Wastes are not received from offsite sources.

C-2c: Waste Generated Onsite [401 KAR 39:060 Section 5, 39:090 Section 1, 40 CFR 264, & 40 CFR 270]

C-2c(1): Sampling Methods

Facility personnel collect non-routine samples for analysis if generator knowledge is not adequate to characterize a waste or waste stream. Table C-2 lists the specific equipment and/or methods used to obtain representative waste stream samples.

C-2c(2): Frequency of Analysis

Frequency of waste analysis will include initial sampling of waste streams with annual confirmation analyses, unless the process or waste stream is known or suspected to have undergone a change. Examples of reasons to reanalyze and recharacterize waste streams include alterations to the SDC 1200 System equipment, substantial changes in system operating parameters, changes in the appearance or behavior of process wastes, or changes in the amount of waste generated.

C-2c(3): Process Knowledge

Facility personnel use process (generator) knowledge in conjunction with air monitoring as required to determine whether solid wastes (e.g., PPE, components/parts, disposable items) are contaminated and pose a hazard to human health due to contamination with chemical agent. These items are placed into an enclosed volume of air (e.g., within a plastic bag or other container) where the headspace above these items is air monitored. Headspace screening will be used to evaluate the potential hazard of wastes contaminated with chemical nerve agents GB or VX. Agent contaminated secondary wastes will potentially require decontamination to lower agent contamination levels. This reduces risks associated with management of these wastes. Decontamination will follow procedures that include the use of water with or without a surfactant/soap, a neutralizing solution, such as dilute sodium hydroxide (NaOH) solution, air sparging, or thermal treatment, such as steaming. Decontamination efforts for wastes that do not meet the BTRA shipment standard will depend on surface decontamination using liquid solutions such as dilute caustic or thermal decontamination.

C-2c(4): Analytical and Monitoring Methods

Table C-1 lists the waste streams and testing proposed to make waste determinations with the rationale and the basis for selecting the testing for each waste stream. Table C-2 identifies appropriate sampling equipment and methods for sampling wastes. Facility wastes, analytical methods, frequency of analysis, rationale for the selection of the analytical method and regulatory basis for the analysis or monitoring are summarized in Table C-3.

C-2d: Additional Requirements for Facilities Handling Ignitable, Reactive, or Incompatible Wastes [401 KAR 39:090 Section 1]

This section is for historical reference for closure. The U.S. Army's knowledge of the munitions and munitions' components—including the munitions design, composition of the explosives, energetics, and agent—provides adequate characterization information for munitions and munitions components necessary to identify ignitable, reactive, and incompatible wastes munitions to allow safe storage and treatment at this facility; Table C-4 provides the composition of chemical agents GB and VX, energetics, and propellant. The Part D process description in this renewal discusses the SDC 1200 units capabilities for treatment and deactivation of the munitions' explosive components and addresses destruction of chemical agents GB and VX so that further characterization of ignitability, reactivity, or determination of incompatibility will not be required. Where applicable, the process and secondary waste will be sampled and analyzed as described in Table C-1 and Table C-2 to support storage and disposal. Ignitable and reactive wastes, when present, are stored in their original munitions' configuration or approved DOT containers or overpacks, which are compatible with the wastes. Process and secondary wastes are stored in approved DOT containers and managed in a manner that prevents chemical reaction, fire, or explosion. In addition, these wastes are stored in areas away from sources of ignition and have conspicuous placement of "No Smoking or Open Flames" signs. Smoking in the SDC 1200 Facility is permitted only in designated areas, and open flames are only allowed with a Hot Work Permit.

C-2e: Additional Requirements Pertaining to Boiler/Industrial Furnace Facilities [401 KAR Section 39:090 Section 3]

Not applicable. Boilers or industrial furnaces are not used at the SDC 1200 Facility for waste treatment.

C-3: Additional Waste Analysis Requirements Pertaining to Land Disposal Restrictions [401 KAR 39:090 Section 1, 39:060, Section 4 & 40 CFR 264.13(a)-(c), and 268]

The Hazardous and Solid Waste Amendments to RCRA prohibit land disposal of untreated, restricted wastes that are subject to RCRA, and establish treatment standards for these restricted wastes before allowing land disposal. Information provided in this section describes the method by which SDC 1200 Facility personnel identify, characterize, document, and certify wastes that are or are not subject to LDRs.

The SDC 1200 Facility is both a generator and a storage facility for wastes, including wastes subject to LDRs. SDC 1200 Facility personnel do not intend decontamination performed in the facility to serve as treatment to meet LDRs, an LDR treatment standard does not exist for chemical agents GB and VX.

Additionally, SDC 1200 Facility personnel use knowledge of the waste generating processes to identify and characterize wastes and determine whether treatment is required to meet LDRs. If process knowledge for a waste stream is insufficient as a basis for determining whether LDRs apply, then waste analyses will be performed. Generally, a minimum three representative samples of process wastes will be submitted for laboratory analysis, these analyses will be repeated at least annually and if the process changes or is suspected of changing. For most of the waste streams generated, determination of applicability of the LDRs will require initial sampling with subsequent annual confirmation.

Table C-1 and C-2 identify potential methods that will be used for determinations of LDR applicability and to satisfy compliance with LDR treatment standards and notification and certification requirements. In addition, in most cases off-site TSDFs will provide additional required treatment and characterization to satisfy LDR requirements.

The SDC 1200 Facility generates listed wastes and spent solvent wastes, while also generating characteristic wastes, and waste mixtures with overlapping requirements. Wastes streams are stored in the permitted and <90-day storage units. Facility personnel determine, as part of the initial waste characterization program, RCRA waste codes and underlying hazardous constituents for characteristic wastes. Permitted commercial TSDFs will provide any treatment required to achieve LDR treatment standards and characterization demonstrating the standards have been met.

Onsite copies are maintained of all notifications, certifications, demonstrations, and other documentation produced to support the determination for LDR waste treated, stored, or disposed at the TSDF.

Retention, in the facility files, of notifications, certifications, supporting data, and waste analysis data is for a period of at least three (3) years.

C-3a: Dilution prohibited as a substitute for treatment [401 KAR 39:060 Section 4 and 40 CFR 268.3]

Not applicable. The SDC 1200 Facility does not treat wastes or treatment residues restricted from land disposal by dilution.

C-3b: Treatment surface impoundment exemption [401 KAR 39:060 Section 4 and 40 CFR 268.4]

Not applicable. The SDC 1200 Facility does not treat wastes or treatment residues in surface impoundments.

C-3c: Procedures for case-by-case extensions to an effective date exemption [401 KAR 39:060 Section 4 and 40 CFR 268.5]

No extensions are requested with the submission of this renewal.

C-3d: Petitions to allow land disposal of a waste prohibited under subpart C of part 268 [401 KAR 39:060 Section 4 and 40 CFR 268.6]

No exemption from land disposal exemptions is sought with the submission of this renewal.

C-3e: Testing, tracking, and recordkeeping requirements for generators, reverse distributors, treaters, and disposal facilities [401 KAR 39:060 Section 4 and 40 CFR 268.7]

Facility personnel will use laboratory analysis and generator knowledge to determine whether waste characteristics for a specific waste stream can be excluded from further consideration for each of the waste streams listed in Part A. Additional testing will be performed when needed to determine if specific waste restrictions (e.g., LDRs) apply to a specific waste stream. Table C-2 identifies the sampling methods used and Table C-1 summarize the sampling and testing that will be performed. The SDC facility does not land dispose of hazardous waste, these wastes are sent to a TSDF for treatment and final disposal.

C-3f: Special rules regarding wastes that exhibit a characteristic [401 KAR 39:060 Section 4 and 40 CFR 268.9]

Wastes to be managed during operation are characterized as described in Section C-1 and Section C-2. The information provided by this characterization allows for determinations of LDR applicability and compliance with LDR treatment standards, concentration limits, or notification and certification requirements for LDR constituents and underlying hazardous constituents. Specific analysis required to determine whether the waste is an LDR restricted waste and whether the waste is being managed properly under the land disposal requirements are discussed in these sections.

C-3g: Surface impoundment exemptions [401 KAR 39:060 Section 4 and 40 CFR 268.14]

Not applicable. The SDC 1200 Facility does not include any surface impoundments.

C-3h: Waste specific prohibitions—Dyes and/or pigments production wastes [401 KAR 39:060 Section 4 and 40 CFR 268.20]

Not Applicable. The SDC Facility does not generate or manage K181 wastes.

C-3i: Waste specific prohibitions—wood preserving wastes [401 KAR 39:060 Section 4 and 40 CFR 268.30]

Not applicable. The SDC 1200 Facility will not treat or generate F032, F034, or F035 wood preserving wastes.

C-3j: Waste specific prohibitions—Dioxin-containing wastes [401 KAR 39:060 Section 4 and 40 CFR 268.31]

The SDC 1200 Facility uses generator knowledge and/or analytical testing to determine whether waste treatment processes generate dioxin containing, restricted wastes. Operating records include the generator knowledge and/or analytical results used to make restricted waste determinations.

C-3k: Waste specific prohibitions—Soils exhibiting the toxicity characteristic for metals and containing PCBs [401 KAR 39:060 Section 4 and 40 CFR 268.32]

Not applicable. The SDC 1200 Facility will not treat or generate soils characteristic for metals and containing PCBs.

C-3l: Waste specific prohibitions—chlorinated aliphatic wastes [401 KAR 39:060 Section 4 and 40 CFR 268.33]

Not applicable. The SDC 1200 Facility will not treat or generate K174 or K175 wastes or soil and debris contaminated with these wastes.

C-3m: Waste specific prohibitions—toxicity characteristic metal wastes [401 KAR 39:060 Section 4 and 40 CFR 268.34]

The SDC 1200 Facility does not land dispose of toxicity characteristics wastes D004 – D011 and uses generator knowledge and/or analytical testing to determine whether process, secondary, and other wastes exhibit toxicity characteristics. Operating records include the generator knowledge and/or analytical results used to make restricted waste determinations.

C-3n: Waste specific prohibitions—petroleum refining wastes [401 KAR 39:060 Section 4 and 40 CFR 268.35]

Not applicable. The SDC 1200 Facility will not treat or generate K169, K170, K171, and K172, waste or soils and debris contaminated with these wastes.

C-3o: Waste specific prohibitions—inorganic chemical wastes [401 KAR 39:060 Section 4 and 40 CFR 268.36]

Not applicable. The SDC 1200 Facility will not treat or generate K176, K177, and K178 waste or soils and debris contaminated with these wastes.

C-3p: Waste specific prohibitions—ignitable and corrosive characteristic wastes whose treatment standards were vacated [401 KAR 39:060 Section 4 and 40 CFR 268.37]

Not applicable. The SDC 1200 Facility will not dispose of these wastes.

C-3q: Waste specific prohibitions—newly identified organic toxicity characteristic wastes and newly listed coke by-product and chlorotoluene production wastes [401 KAR 39:060 Section 4 and 40 CFR 268.38]

The SDC 1200 Facility does not land dispose of toxicity characteristics wastes D012 – D043 and uses generator knowledge and/or analytical testing to determine whether waste exhibit toxicity characteristics (D012 – D043). Operating records include generator knowledge and/or analytical results used to make restricted waste determinations.

C-3r: Waste specific prohibitions, reactive [401 KAR 39:060 Section 4 and 40 CFR 268.39(a)-(g)]

The SDC 1200 Facility treated military munitions (unexploded ordnance) containing chemical warfare agent GB and VX wastes and uses generator knowledge and/or previous analytical testing supplied by the US ARMY and other military demilitarization sites to identify the reactive components in these wastes. LDR requirements for process waste resulting from the treatment of these wastes are determined by generator knowledge and/or analytical testing. Operating records include the generator knowledge and/or analytical results used to make restricted waste determinations. Specific information for the munitions is contained in Table C-4.

C-3s: Applicability of treatment standards [401 KAR 39:060 Section 4 and 40 CFR 268.40]

The SDC 1200 Facility does not land dispose of wastes. Facility personnel use knowledge of the waste generating processes to identify and characterize wastes and determine whether treatment is required to meet LDRs. If process knowledge of a waste stream is insufficient as a basis for determining LDR applicability, then waste analyses will be performed as identified in the preceding sections.

C-3t: Treatment standards expressed as specified technologies [401 KAR 39:060 Section 4 and 40 CFR 268.42]

The SDC Facility complies with the requirements identified in this section including the description of technology-based standards contained in Table 1 “Technology Codes and Description of Technology-Based Standards” of this section.

C-3u: Variance from a treatment standard [401 KAR 39:060 Section 4 and 40 CFR 268.44]

No variance is sought or requested.

C-3v: Treatment standards for hazardous debris [401 KAR 39:060 Section 4 and 40 CFR 268.45]

SDC 1200 Facility does not land dispose of hazardous waste; wastes generated during the operation of the facility are sent to a TSDF for final treatment and disposal. These wastes are characterized and managed IAW the requirements of this section. Identification of applicable treatment standards is done using generator knowledge and sampling and analysis as necessary to comply with the requirements of this section. The potential sampling and analysis methods are identified in Tables C-1 and C-2.

C-3w: Universal Treatment Standards [39:060 Section 4 and 40 CFR 268.48]

The SDC 1200 Facility does not treat waste to Universal Treatment Standards; all wastes subject to UTS are sent to TSDFs for further treatment and disposal.

C-3x: Alternative LDR treatment standards for contaminated soil [401 KAR 39:060 Section 4 and 40 CFR 268.49]

The SDC Facility does not anticipate generating contaminated soils. However, if this were to occur the sampling and analysis methods contained in the previous section and specifically listed in Tables C-1 and C-2 are sufficient to characterize this waste and identify appropriate treatment standards and land disposal restrictions applicable to these wastes.

C-3y: Prohibitions on storage of restricted wastes [401 KAR 39:060 Section 4 and 40 CFR 268.50]

The SDC Facility will have permitted container storage areas and will comply with the container storage prohibitions outlined in this section.

Part D: Process Information

The SDC 1200 Facility is in closure, information related to the inactive units are included for historical reference and clarity if understanding. The SDC 1200 Facility was constructed to treat containerized M56 rocket warheads containing GB or VX. The facility succesfuly destroyed all containerized munitions and is in closure. This renewal application includes a Part A which reflects the status of the treatment units, containers, tanks and miscellaneous (Subpart X) units.

D-1: Containers [401 KAR 39:090 Section 1 and 39:060]

Part C of this Permit Renewal lists and describes the types and characteristics of hazardous wastes stored in containers at this facility.

D-1a: Container Storage Areas

SDC 1200 Facility has a total of five permitted container storage areas. The interior storage areas located inside the enclosure building include SDC Storage area and OTS Storage Areas. The two areas outside the enclosure building are the OTS Storage 2 Area and the EDT service magazine. Specific information about each of these container storage areas follows in subsequent sections.

Container storage areas are concrete and have floor coatings chemically resistant to the liquid materials stored, processed and used in these areas or will use portable secondary containment devices which are compatible with the material in the containers. The coating has been tested and is resistant and sufficiently impervious to chemical nerve agents GB and VX such that it will contain leaks, spills, and accumulated precipitation until the liquids can be removed. Container storage areas designed with secondary containment have sufficient volume to contain at least 10 percent of the volume of the containers or 100 percent of the volume of the largest container, whichever is greater. Storage in a <90-day area will be used for containerized hazardous waste outside the RCRA permitted storage areas. The SDC 1200 Facility will use drum liners and/or bags when placing non liquid, secondary wastes into DOT approved containers. Agent contaminated secondary wastes will be packaged in DOT approved containers, primarily in polyethylene containers, steel containers will only occasionally used to package secondary hazardous wastes. Examples of both steel and polyethylene containers are provided. Other hazardous wastes are also stored in various types and sizes of these containers. The Commonly Used Hazardous Waste Containers table at the end of this section provides examples of commonly used containers. Free liquids in containers are eliminated by adding loose absorbent or absorbent pads to containers before, during or after waste addition to the container. Air monitoring in the container storage areas will include MINICAMS, near-real time monitoring. The monitoring alarm setpoints is 0.5VSL for both GB and VX chemical nerve agent. Confirmation monitoring using DAAMS methodologies will be analytically quantified qualitatively.

All wastes shipping containers meet DOT performance orientated packaging (POP) requirements— these containers are marked with the appropriate DOT packaging authorization number. Storage of hazardous wastes within the facility will occur in tanks, roll offs, boxes, and containers. The specific container is determined based on the waste characteristics.

If containers other than those listed in the table below are used, the containers will comply with the appropriate DOT requirements or facility personnel will transfer wastes into DOT approved containers prior to transport offsite.

NOTE: Examples of exceptions to the use of DOT approved containers for container storage at the SDC 1200 Facility include:

1. Double plastic bags provide a way to stage secondary waste (includes PPE, rags, spill pads, equipment, tools and similar items potentially contaminated with agent) near the point of generation until the bagged waste can be monitored and placed into DOT approved containers prior to movement to the <90 day storage location or to an offsite treatment and disposal facility.
2. Portable containers also known as totes (i.e., not approved by DOT) will potentially be used to contain and store bulk liquid wastes during SDC System maintenance or emergency response activities prior to placement of the waste into DOT-approved containers and movement to a storage location.

Containers stored in <90-day or RCRA permitted storage and munitions stored in the RCRA permitted areas will comply with the following general container management standards:

1. If any hazardous waste container/projectile is emitting vapors, personnel transfer the waste contents into a new container, or the entire container/projectile is over-packed.
2. Wastes identified as incompatible are stored in separate areas. Berms, dikes, walls or other physical barriers separate these areas. The same container does not receive incompatible wastes as each container is used for only one waste stream and personnel clean containers previously holding a waste or material before using the container for waste storage. Cleaning wastes will be appropriately characterized and managed.
3. Containers of hazardous waste remain closed throughout storage, except to add or remove waste.
4. Workers do not open, handle, or store containers in a manner that will rupture the container or cause it to leak. Pallets are used to the maximum extent possible to preclude puncture of containers and ensure storage above possible contact with moisture. Only employees trained to operate the MHE equipment will move the containers/pallets. MHE equipment used to move containers include pallet jacks, jib cranes, drum dollies, and forklifts.
5. Munitions within the storage magazine and other containers within other portions of the SDC 1200 Facility are stacked no more than two high to maximize the use of space and ensure safe storage of containers/munitions.
6. The layout of the permitted container storage areas provides sufficient aisle space (minimum of 30 inches) to allow ease of inspection and ensure equipment used to move projectiles in pallets/skids do not strike a projectile. Munitions that are stored within the secondary containment do not contact the containment wall and have sufficient space (between the berm or wall and the stored containers) to allow inspection and viewing of the stored containers.
7. BGAD and BPBG Team policies and procedures forbid smoking within the SDC 1200 Facility except in designated areas. Hot work permits preclude open flames, cutting and welding, sparks and other ignition sources without a permit and appropriate special precautions or requirements. Facility personnel separate and protect ignitable or reactive hazardous wastes from sources of ignition or possible reaction. Containers holding ignitable or reactive wastes are located more than 15 meters (50 feet) from the BGAD property boundary.
8. If generator knowledge is insufficient, laboratory analyses and tests identify incompatible, reactive, and ignitable wastes and materials. Generator knowledge or laboratory results confirm precautions that can prevent reactions involving ignitable, reactive, and incompatible wastes.

9. Label and mark each pallet or skid of munitions in permitted storage with the words "Hazardous Waste" a label or marking indicating the hazard of the material and an accumulation start date.
10. Containers storing hazardous wastes will be appropriately labeled with hazardous wastes labels per regulatory guidelines.
11. Weekly inspections are conducted and documented for the permitted container storage areas (and also any other <90-day storage areas within the SDC 1200 Facility). The inspection includes the elements identified above but focuses on identifying damage/deterioration of munitions and damage to or leakage/spills within the containment systems.
12. All areas that store items with liquid agent or waste containers with ≥1 VSL waste are equipped with air monitoring systems.

The design features of the permitted storage areas provide control of liquid and vapor releases as follows:

1. Liquids: Wastes that include free liquids will require secondary containment that meets the requirements in 40 CFR §264.175. Containers with free liquids will be stored on spill pallets or with other portable containment. Free liquids in containers are eliminated by adding loose absorbent or absorbent pads to containers before, during or after waste addition to the container. A minimal quantity of waste in containers is expected to be stored in the facility due to use of an exterior double-walled frac tank for the storage of waste prior to off-site shipment to a permitted TSDF.
2. Vapor Releases: MINICAMS® will be used to monitor the air within the storage magazine, a carbon filter unit is connected to the magazine vent to maintain the structure under engineering controls. If a reportable, agent release is detected in the permitted container storage area, the filter unit will be turned-on to exhaust and filter the air within the magazine. The combination of the air monitoring and carbon filter unit will be used to provide engineering controls to prevent agent releases to the environment. MINICAMS® will be used to monitor the air within the SDC storage area and OTS Storage A area. These rooms are part of the EB vapor containment system for the SDC 1200 system, air flows into these areas and is exhausted through a carbon filtration unit. The combination of the air monitoring and carbon filter unit will be used to provide engineering controls to protect human health and prevent agent releases to the environment.
3. The storage magazine is not designed to contain a detonation inside the area. Instead, the magazine protects materials and munitions stored inside it from outside explosions/fragmentation and is also designed to secure chemical munitions in accordance with Chapter 5 of Army Regulation (AR) 190-59, Chemical Agent Security Program (Storage Requirements). There is no Army requirement for the storage magazine to be capable of handling or containing a detonation event from a chemical weapon. The storage magazine has been located (sited) within the SDC 1200 Facility to meet the applicable explosive safety requirements as required by U.S. Army Technical Center for Explosives Safety (USATCES) and the Department of Defense Explosive Safety Board (DDESB).

Commonly Used Hazardous Waste Containers

CAPACITY (gallons)	DESCRIPTION	UNITED NATIONS (UN) MARKINGS
350	Open head steel/poly intermediate bulk container	31A/31H1/31H2
275	Cubic Yard Fiberboard Box	UN 4G

110	Open head steel salvage drum	UN 1A2
95	Open head polyethylene salvage drum	UN 1H2
85	Open head steel salvage drum	UN 1A2
85	Open head polyethylene salvage drum	UN 1H2
55	Open head steel drum	UN 1A2
55	Closed head steel drum	UN 1A1
55	Closed head polyethylene drum	UN1H1
55	Open head polyethylene drum	UN 1H2
30	Closed head steel drum	UN 1A1
30	Closed head polyethylene drum	UN 1H1
30	Open head steel drum	UN 1A2
30	Open head polyethylene drum	UN-1H2
15	Closed head polyethylene drum	UN 1H1
8	Open head steel pail	UN 1A2
5	Open head steel pail	UN-1A2
5	Open head polyethylene pail	UN 1H2
5	Closed head polyethylene pail	UN 1H1
5	Closed Head Jerrycan	UN 3H1
1	Open head polyethylene pail	UN 1H2

D-1a(1): EDT Storage Magazine

The storage magazine is constructed to comply with the DoD requirements for storage of explosive munitions in addition meeting requirements for RCRA container storage. Containers with free liquids will be stored on secondary containment pallets with sufficient capacity to contain at least 10 percent of the volume of the containers or 100 percent of the volume of the largest container, whichever is greater. The storage magazine will have RCRA permitted storage of 475 drained and containerized warheads, 19 skids with 25 warheads each. The Net explosive Weight (NEW) will not exceed 500 pounds. The ESM will be monitored at the VSL level, the monitoring alarm setpoint is 0.5 VSL for GB and VX chemical nerve agents with confirmation of agent detection by DAAMS monitoring. The storage magazine is equipped with an IONEX 1000 CFM filter unit. MINICAMS will monitor the ESM continuously. If a leak is detected, the MINICAMS will alarm locally at the ESM and remotely at the Control Room (CON), resulting in an Operator manually turning the filter unit on, and verifying and adjusting air flow as required. Therefore, the IONEX 1000 filter unit is operated “as needed” in the event agent vapor is identified by air monitoring equipment and is consistent with Army regulations established in DA PAM 742-1 “Ammunitions Surveillance Procedures”.Procedures”. Air monitoring within the magazine will be conducted by MINICAMS® combined with DAAMS for confirmation. A permanent IONEX Model CD1000 filter system will be connected to the ESM. The filter system is designed to handle up to 1000 cfm air flow and consists of a pre-filter, a HEPA filter, a charcoal filter and a test section (referred to as the ‘mid-bed’). From this point, the filter train continues with a second charcoal filter followed by another HEPA filter. The exhaust filtration unit is connected to the ESM in such a fashion as to provide negative pressure within the facility with respect to the air outside the facility. MINICAMS and DAAMS monitoring locations points are located within the ESM, at the filter mid-bed and at the IONEX Model CD1000 filter stack.

The ESM stack will be monitored at 1.0 VSL and used for compliance criteria. The combination of the air monitoring and IONEX Model CD1000 filter unit will be used to provide engineering controls to prevent agent releases from the magazine into the environment.

D-1a(2): OTS Storage Area

This 2,200 gallon permitted container storage area is located inside the SDC 1200 enclosure building in the OTS room and will be used for permitted storage of secondary waste containers. Waste streams likely to be stored in this area include secondary and other wastes identified on the Part A. Containers used to store these waste are shown in the table of Commonly Used Hazardous Waste Containers in section D-1a. Secondary containment for hazardous container wastes in this storage area will be provided by portable secondary containment units that will be compatible with the materials being stored and of sufficient capacity to contain at least 10 percent of the volume of the containers or 100 percent of the volume of the largest container, whichever is greater. Only <1 VSL agent contaminated waste will be stored in this area. Container storage within the footprint of the room will vary depending on maintenance and operational requirements but the storage locations within the room will be identified with signs or marking and will conform to isle spacing requirements and requirements for marking and labeling for waste in storage.

D-1a(3): OTS Storage Area 1

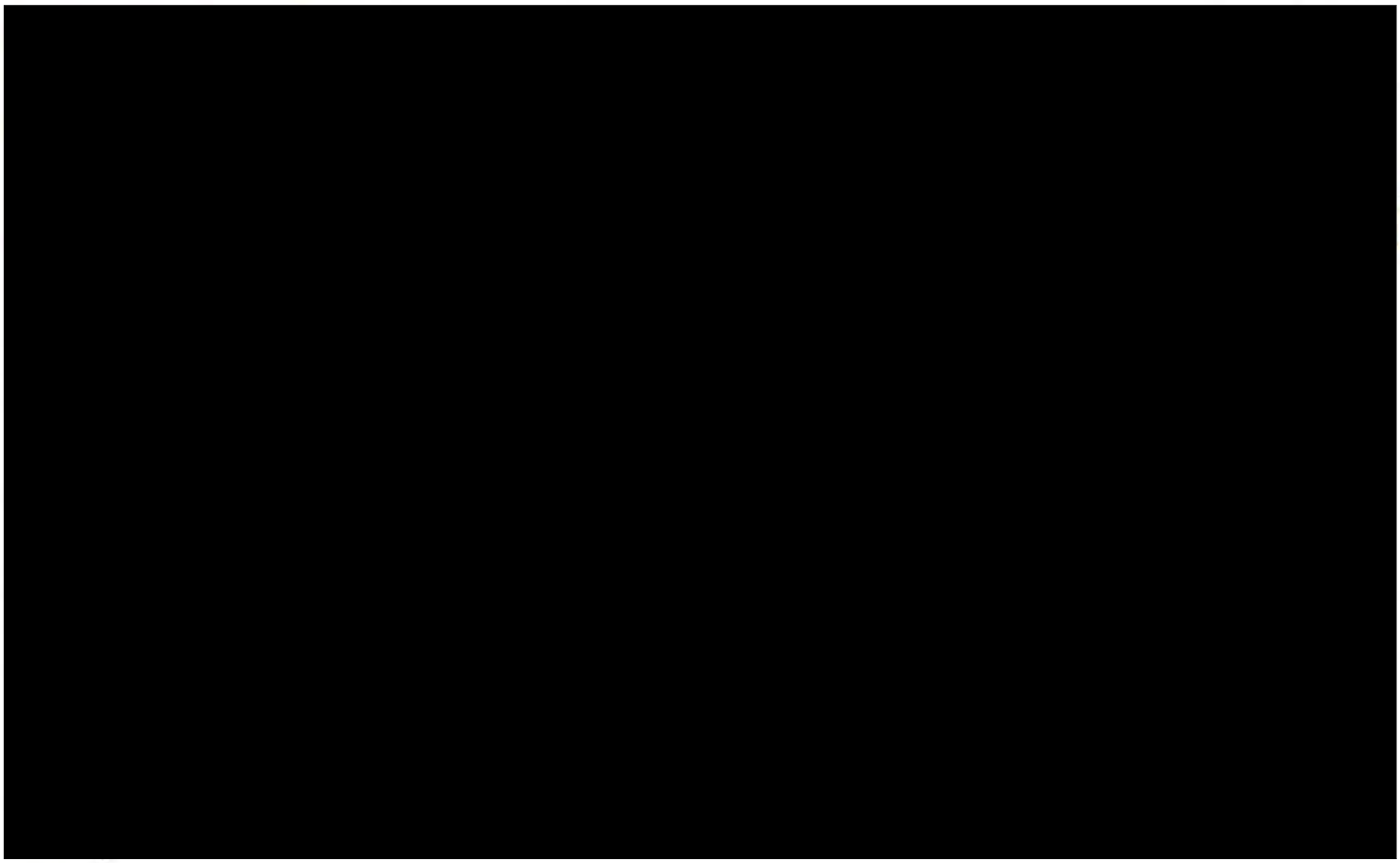
This 2,500-gallon permitted container storage area is located inside the SDC 1200 enclosure building in the OTS room and will be used for permitted storage of secondary waste containers. Waste streams likely to be stored in this area include secondary and other wastes identified on the Part A. Containers used to store these waste are shown in the table of Commonly Used Hazardous Waste Containers in section D-1a. Secondary containment for hazardous container wastes in this storage area will be provided by portable secondary containment units that will be compatible with the materials being stored and of sufficient capacity to contain at least 10 percent of the volume of the containers or 100 percent of the volume of the largest container, whichever is greater. Only <1 VSL agent contaminated waste will be stored in this area. Container storage within the footprint of the room will vary depending on maintenance and operational requirements but the storage locations within the room will be identified with signs or marking and will conform to isle spacing requirements and requirements for marking and labeling for waste in storage.

D-1a(4): OTS Storage 2

This 40,000 gallons permitted container storage area stores liquid OTS waste in portable containers prior to loading into tankers for transportation offsite for treatment and disposal. The OTS portable OTS wastewater containers receive OTS water from the Bleed water tank and alternately receive OTS water and pump OTS water into waste tankers. The area will contain two portable containers with internal secondary containment capable of holding 100% of the volume of the container. Other containers stored in the area will be on secondary containment pallets or in hazardous material storage lockers with secondary containment designed to contain at least 10 percent of the volume of the containers or 100 percent of the volume of the largest container, whichever is greater. Waste generated as a result of operations and maintenance of this area will also be stored in containers in this area. Any containers with free liquids will be stored on secondary containment pallet s or in lockers with secondary containment. These portable secondary containment units will have sufficient capacity to contain at least 10 percent of the volume of the containers or 100 percent of the volume of the largest container, whichever is greater.

D-1a(5): SDC Storage Area

This 2,200 gallon permitted container storage area is located inside the SDC 1200 enclosure building in the SDC room and will be used for permitted storage of munitions prior to processing in addition to containers of secondary waste generated from operation and maintenance activities. Waste streams likely to be stored in this area include munitions for processing identified on the Part A. Containers used to store these waste are shown in the table of Commonly Used Hazardous Waste Containers in section D-1a. Floor coatings within the SDC and Enclosure buildings are impervious to GB and VX in the event of vapor or other releases, but secondary containment will be provided by spill pallets. Secondary containment for hazardous container wastes in this storage area will be provided by portable secondary containment units i.e. spill pallets that will be compatible with the materials being stored and of sufficient capacity to contain at least 10 percent of the volume of the containers or 100 percent of the volume of the largest container, whichever is greater. Both >1 VSL and <1 VSL agent contaminated waste will be stored in this area. Container storage within the footprint of the room will vary depending on maintenance and operational requirements but the storage locations within the room will be identified with signs or marking and will conform to isle spacing requirements and requirements for marking and labeling for waste in storage.



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D-2: Tank Systems [401 KAR 39:060 Section 5 and 39:090 section 1 & 40 CFR 264.190, 264.193 and 270.16]

The SDC 1200 facility has completed destruction of chemical agent muntions and is in closure. The Bleed Water Tank (BWT) is inactive.The SDC 1200 Facility waste management units include a RCRA-permitted 476-gallon skid-mounted BWT that receives four liquid OTS Waste Streams for storage (Quench water, Neutral Scrubber water, Separator water, and Wet Electrostatic Precipitator flush water). The tank design and specifications are included in the permitted drawings package supplied with this renewal. The BWT will have secondary containment IAW 40 CFR 264.193 that include concrete floor coatings and curbing as well as the use of a drip pan. It is equipped with an agitator to mix the OTS liquid waste content in the tank to assure uniform pH measurements. The pH of the wastewater in the tank is measured and dosed with potassium hydroxide as necessary to achieve a final pH of approximately 6.5 and 7.5. Once the OTS wastewater in the tank reaches a predetermined level and the desired pH, the liquid content of the BWT is transferred to one of two OTS containers using the bleed water pump (BWP). The tank is pumped until a programmed minimum level is reached, making volume available for additional OTS liquid wastes waters.

D-3: Waste Piles [401 KAR 39:090 and 39:060 Section 5 & 40 CFR 124, 264, and 270]

Not applicable. The SDC 1200 Facility waste management units do not include waste piles.

D-4: Surface Impoundments [401 KAR 39:090 Section 1 and 39:060 Section 5 & 40 CFR 124, 264, and 270]

Not applicable. The SDC 1200 Facility waste management units do not include surface impoundments.

D-5: Incinerators [401 KAR 39:090 Section 1 and 39:060 Section & 40 CFR 124, 264, and 270]

Not applicable. The DC does not have a controlled flame, only uses indirect heating, and is therefore not an incinerator.

D-6: Landfill Design [401 KAR 39:090 Section 1 and 39:060 Section 5 & 40 CFR 124, 264, and 270]

Not applicable. The SDC 1200 Facility waste management units do not include landfills.

D-7: Land Treatment [401 KAR 39:090 Section 1 and 39:060 Section 5 & 40 CFR 124, 264 and 270]

Not applicable. The SDC 1200 Facility waste management units do not include land treatment.

D-8: Miscellaneous Units 4[01 KAR 39:060 Section 5 and 39:090 Section 1 & 40 CFR 124, 270, and 264]

This section addresses the treatment process of munitions containing chemical nerve agent at the SDC 1200 Facility. The facility does not fit the definition for other types of treatment units and is therefore is categorized as a miscellaneous treatment unit under RCRA.

D-8a: Description of Miscellaneous Units [401 KAR 39:060 Section 5 and 39:090 Section 1 & 40 CFR 124, 270, and 264]

The SDC 1200 system is designed to destroy chemical munitions which are either explosively or non-explosively configured. The SDC 1200 does not require the use of explosive donor or counter charges to destroy munitions. The system is able to handle various types of munitions. Over-packed munitions can be processed without being removed from the over-pack container. The System is designed and built in such a way as to eliminate worker or public exposure to explosive or environmental hazards, and to produce by-products that are environmentally acceptable. The system is designed with interlocks and redundant systems where required, for safety and to prevent release to the environment. A description of the SDC 1200 Facility is described in section D-8a(1).

D-8a(1): Description of Miscellaneous (Subpart X) Unit

This section addresses the treatment processes of hazardous wastes inside the SDC 1200 at BGAD with BPBG Team as the operator. The SDC System does not fit the definitions for other types of treatment units (i.e., sections D-1through D-7) and is therefore categorized as a miscellaneous waste treatment (Subpart X) unit under the RCRA.

The SDC 1200 Unit (located inside an enclosure), Service Magazine, Personnel Support Facility (PSF), monitoring house, SDC 1200 facility's Control Room (CON), and a security Entry Control Facility are all located inside the SDC 1200 facility area, which is contained within the Chemical Limited Area. The siting area for the SDC 1200 footprint is improved (asphalt and/or concrete tarmac) and flat, requiring infrastructure improvements such as a reinforced concrete equipment foundation for the SDC 1200 and the off-gas treatment system.

The SDC is a heated, armored, double shell enclosure, which operates at high temperature. The inner chamber is heat resistant stainless steel excellent at high temperatures which is able to withstand the mechanical stress loads caused by detonation pressures. The inner and outer chambers are separated from one another by an air space which serves to decouple detonation stresses from the inner to the outer chamber, thus enhancing the overall safety and reliability of the unit. Placed within the bottom of the outer chamber are electric resistance heaters, which supply heat to the unit. The outer chamber also includes thermal insulation for efficiency. This enclosure serves as an additional barrier between the chamber and process room and protects workers from burns and dust, as well as providing additional vapor containment in the highly unlikely event that both chambers are breached.

During operations, a gas-tight seal is maintained between the chambers by a redundant set of mechanical seals. The DC will contain rope gaskets and the last outer seal is solid rubber. The solid rubber is likely Viton, but analysis has not yet been finalized. There will be two inner and three outer rope gaskets. They are all the equivalent quality, Carboflon 350HD, it is a graphite / carbon fiber rope gasket.

D-8b: Treatment Unit Design/Construction Details

This section describes the criteria for locating the Subpart X units; design and construction of the units; operating conditions; maintenance, monitoring, and inspection; safety features; and closure.

D-8b(1): Criteria Used for Location of Units

The SDC 1200 Facility is located on BGAD near the storage area for stockpiled chemical munitions to minimize the distance chemical munitions are transported. This location (near the stored munitions) minimizes the risk to the public and workers while being compliant with prohibitions against public transport of chemical weapons. Part B of this Permit Renewal Request addresses the adequacy of the SDC 1200 Facility location within BGAD (e.g., geology, surrounding land use, seismic concerns, and meteorology). The SDC 1200 Facility location was also chosen because it is adjacent to the BGCAPP Main Plant allowing that use of some BGCAPP Main Plant facilities and resources available (e.g., Laboratory, Medical, Maintenance, Emergency Response). It also takes advantage of the previously selected BGCAPP Main Plant location, which is within the interior of BGAD and away from the general population. Thus, selection of this location also reduces the time needed for the SDC 1200 Facility to begin destruction, minimizes the impact to the BGAD environment and surrounding general population, and eliminates the unnecessary duplication and cost of some support facilities.

D-8b(2): Design and Construction (including containment and ventilation systems)

The DC has a heated, armored, outer shell surrounding the inner DC liner, which operates at an elevated temperature. The chamber is constructed of a special heat-resistant stainless steel, which is able to withstand the mechanical stress loads caused by the pressures generated by the deflagration or detonation of the chemical munitions during treatment. The inner and outer chambers are separated from one another by an air space, which serves to decouple detonation stresses from the inner to the outer chamber, thus enhancing the overall safety and reliability of the unit. Placed against the bottom and along the lower sides of the outer chamber are electric resistance heaters that supply heat to the unit. The DC serves as the primary munitions and agent treatment area and also serves as the primary blast, fragment, and containment barrier between the treatment area and Facility workers within the SDC Enclosure Building. The outer chamber includes insulation and reduces the noise impact to workers.

Each area in the SDC 1200 Facility is designated with one of four ventilation categories (i.e., A, B, C, or D based on the potential for agent contamination during normal munitions and support operations). Descriptions of these categories are as follows:

- Category A: Areas with a high probability of liquid agent contamination (maintained under negative pressure)
- Category B: Areas possibly contaminated with agent vapor resulting from routine operations (maintained under negative pressure)
- Category C: Areas with a low probability of agent vapor contamination (maintained under negative pressure)
- Category D: Areas expected to never have agent contamination (atmospheric pressure)

The SDC 1200 Facility has a cascade ventilation and filtration system. Areas in the facility with the highest potential for contamination are maintained at the most negative pressure. Airflow cascades progressively from the areas of least probable contamination (Category C areas) to the areas of higher probable contamination (Category A and B areas). Sealing of walls, floors, ceilings, and penetrations of Category A, B, and C areas prevents migration of liquid or vapor

agent to other areas. The vestibule and vapor containment separate Category A and B areas from the outside environment. Category upgrading of an area provides temporary control of an increased hazard potential in an area (e.g., the identification of liquid agent in a Category B area results in the area being temporarily upgraded to a Category A area).

Vapor containment for the DC (Category A) is provided by the outer chamber and a portion of the OTS is contained within a Category B area. The SDC System emissions flow through the OTS and are exhausted through the process final filter unit for OTS (i.e., containing pre-filters, HEPAs, and carbon media).

Incrementally greater negative pressures are found when moving from the Category D area towards the Category C, B, and A areas. Thus, the air flow “cascades” from the Category D area into the areas with potentially greater contamination. This air flow and the negative pressure gradient serve not only to move any potentially contaminated air through the treatment equipment, but also draws air through the final filter units. The air is drawn into the building, keeping it at a negative pressure with respect to the outside category D air and preventing the flow of any contaminants into the environment.

The cascading air flow protects the workforce, the environment, and the community from the chemical agent hazard, and ensures chemical nerve agent GB or VX is not released outside of engineering controls.

Cascading air flow begins with outside air entering the outer weather enclosure of the SDC Facility Category D area. Negative pressure begins as the air flow from the Category D building area is drawn into the Category C area, because the cascading air flow design agent is never expected to be present in the Category D area.

Flow is from less negative to more negative pressure areas, with the most negative being at the two final filter units. Air flow from the DC, Buffer Tank, Thermal Oxidizer, and OTS flows through the process final filter unit. Air flow from the larger Category C area flows through the final filter unit.

D-8b(2)(a): System Safety Features

The System is equipped with failsafe functions, i.e. each actuator has a number of interlocks which prevents potential safety hazards by the operator or the automatic sequence process. The interlocks remain active, regardless of operation mode, (automatic, local control or remote manual). Safety relevant functions are controlled by the equipment software, but also hardwired, i.e. the energy to the actuators is deactivated in hardware when an interlock occurs.

The SDC 1200 Facility fire protection system is an automatic sprinkler system that complies with applicable regulatory requirements. Refer to Part F: Procedures to Prevent Hazards for additional information.

A pad-mounted transformer is provided to supply electrical power to the SDC 1200 Facility. Natural gas will be supplied to heat the thermal oxidizer. Water is received from BGAD via pipeline and distributed to points of consumption throughout facility. The system also supplies water to the required process systems.

D-8b(3): Transportation of Material for Treatment

Transportation details are discussed in Section B-4. The SDC 1200 Facility will accept for treatment, munitions and munition components from the SDC 1200 storage magazine or directly from the BGCAPP Main Plant.

D-8b(4): Criteria Used for Location of Units

Location criteria for the SDC 1200 Facility is addressed in Section B-3.

D-8b(5): Process Overview

This section is included for historical reference for closure. The SDC 1200 System is designed for destruction of chemical munitions, conventional munitions, munitions components, energetic and explosive materials and agent and/or explosive contaminated secondary wastes by indirect heating in a sealed chamber called a Detonation Chamber (DC). The destruction of the material is achieved by heating the item above its auto initiation temperature. This results in detonation, deflagration, or burn of the energetic materials.

The destruction process is a repeating, batch process. Multiple numbers of trays containing munitions and munitions components can be destroyed which then accumulates any remaining scrap metal in the bottom of the DC. The solid scrap material (resulting from the destruction of the munitions) is emptied periodically onto a Scrap Conveyor. Scrap material is conveyed along the scrap conveyor which also serves to remove loose particulate from the scrap material. The combustion process that destroys the energetic components generates gas waste by products (Off Gas) that is transferred to an Off-Gas Treatment System for proper treatment prior to emission.

The SDC 1200 operates at a temperature of approximately 1000ºF. The plant can be operated in a single-shift mode or up to continuous 24/7 operations as desired by the customer. During non-operational periods, the SDC is kept in standby mode.

D-8b(6): Preparation of Munitions for Destruction

Munitions are placed in feed trays of sufficient mechanical strength for the loading system to properly process them. Should munitions that have been reconfigured, such as repackaged rocket warheads, be delivered for processing at the SDC 1200, they will arrive at the SDC 1200 Facility in a condition suitable for loading.

D-8b(6)(a): Loading/Feeding the munitions into the SDC.

The Loading System transfers the munition trays into the DC one at the time for destruction based on a control program and operator input. The feed trays manually loaded onto Loading Conveyor 1. When the desired number of trays have been placed on Loading Conveyor 1, an automated sequence is initiated remotely from the Control Room. The Loading Conveyors provide proper spacing of the packages and delivers them one by one to the Lift. The Lift raises the packages into a position outside the Loading Chamber 1 (LC1) one at a time. Loading Gate 1 (a gas-tight door on Loading Chamber 1) is already unsealed and opened. Then Electric Loading Pusher 1 pushes the tray into LC1. Pusher 1 retracts and Gate1 closes and seals. The pressure between LC1 and Loading Chamber 2 (LC2) is now equalized and Loading Gate 2 (blast and pressure tight) is unsealed and opened.

The package is pushed into LC2 by Hydraulic Loading Pusher 2, which is attached to Gate 1. Once Pusher 2 is fully extended, it retracts. Loading Gate 2 (blast and gas-tight) closes and seals.

A Hydraulic Cylinder on top of the LC2 now releases a Fragment Cover from the opening to the main chamber below. This enables a Tilting Cradle to turn. The Tilting Cradle turns to drop the package into the Detonation Chamber.

The tilting Cradle now rotates back to a horizontal position aligning the Fragment Cover over the entrance to the Detonation Chamber. At this time, the hydraulic cylinder presses down on the

Fragment Valve to close off LC2 from the DC. The Lift is lowered to the ground level again completing the feeding process.

D-8b(7): Destruction of Munitions in the SDC

Munitions are transferred into the Detonation Chamber and come to rest on the hot scrap material at the bottom of the DC. The munitions heat up above their auto initiation temperature, resulting in deflagration or detonation of the explosives within the munitions, and exposing chemical agent for destruction.

The destruction process is monitored by a pressure sensor, aided by a sound sensor. A set time (Destruction Time) must elapse before the next package can be transferred into the DC to ensure that all munitions in each package are destroyed. The destruction timer is established to ensure that treatment of previously fed munitions has been completed and the system has returned to a stable condition suitable for receipt of the next feed tray.

The heat is generated by two groups of heating elements in the space between the DC and the outer shell. Three elements are located underneath the DC's bottom and six around the lower cone shaped circumference. During the destruction process, the pressure inside the SDC, the temperature of the off gas leaving the DC, the temperature of the DC outer surface, and the heater temperatures are all monitored by the control system.

A source of sweep air, that can be heated if required, flows continuously to the DC during destruction operations. Sweep air serves to move products of the reaction further downstream to the thermal oxidizer. The gases from the destruction process are treated in the OTS.

A Buffer Tank (expansion volume) and an orifice work together to smooth pressure peaks over time as the gases are transferred to the downstream OTS.

D-8b(8): Emptying of Scrap

As the energetics in the munitions are destroyed, the remaining metal accumulates as scrap. Once the scrap level in the DC reaches approximately 50% (by volume) the scrap is emptied. The maximum scrap fill prior to requiring a dump is no more than 75 rocket warheads. Overpacked munitions will be processed individually and the dump sequence will be determined based on observations.

Before emptying the DC, a "Clean Burn Time" (length depending on the munitions type) must elapse in order to ensure safe opening of the DC. An automated sequence opens locking mechanism allowing the lower part of the chamber to lower and rotate. Scrap material then falls down the Scrap Funnel which directs it onto a Scrap Conveyor which is located underneath the DC.

D-8b(9): Reverse Loading

In the event that it becomes necessary to remove the package from Loading Chamber 2 due to an emergency, the loading process can be reversed up until the point the cradle starts rotating. First, Gate 2 is unsealed and opened. An emergency pusher pushes the package backward from LC2 into LC1. The package is then manually moved using a special tool onto the lift. Gate 1 and Gate 2 are closed again.

The lift is then lowered, and the package is transported backwards until it arrives back at Loading Conveyor 2 in waiting position 1.

D-8b(10): Process Ventilation

The Process Ventilation has several purposes:

1. Transfer heat generated from the process and cool the DC locking mechanism. Air flows down around the locking mechanism and the shell and into the scrap funnel.
2. Remove dust generated during scrap emptying, the air is drawn off from the scrap funnel, which is the collection point for the scrap material.
3. Vent Loading Chamber 1 during the loading and feeding process.

The outlet from the process ventilation system is connected to a cyclone, followed by a dust filter and a fan.

D-8b(11): Ancillary Equipment:

D-8b(11)(a): Conveyor System

The Conveyor System starts in the loading room and ends when a tray containing munitions is transported to position outside Loading Chamber 1.

The Conveyor System is electrically powered and consists of:

1. A conveyor which transports the munitions package to the Lift
2. A Lift Conveyor, which raises the package up to the position outside Loading Chamber 1
3. Pusher 1, which pushes the package from the Lift Conveyor into Loading Chamber 1

D-8b(11)(b): Loading System

1. Loading Chamber 1 is located before Loading Chamber 2. Gate 1 is the integral gas tight door on LC1. Gate 1 also supports hydraulic powered Pusher 2. The air in LC1 can be ventilated to the OTS. The pressure difference between LC1 and LC2 is automatically equalized with a control valve and compressed air via an automated control sequence.
2. Gate 2 is located between LC1 and LC2 and Seals the inlet to LC2 providing blast protection and a gas tight seal. It is a hydraulically operated slide gate with integral pneumatically operated seals. The two pneumatic seals are operated with a pressure up to roughly 16 bar (~ 230 psi) to provide the gas tight seal.
3. Loading Chamber 2 (LC2) has a built in hydraulically powered Cradle. When a package has been pushed into the loading position, the Cradle turns 90 degrees (to vertical position) allowing the package to slide down into the Detonation Chamber. The Cradle then turns back to the horizontal (receiving) position, aligning the Fragment Valve over the opening to the DC. The Fragment Valve acts as a shield and is designed to withstand the pressure and the fragments from the Detonation Chamber. The fragment valve is not gas tight. With the Cradle in a horizontal (receiving) position, a hydraulically operated piston lowers to place pressure on the Fragment Valve preventing it from escaping the opening between LC2 and the DC during detonation. Prior to rotating the Cradle, the hydraulically operated piston relieves pressure off the Fragment Valve. To monitor the feed of the tray into the DC, two cameras are mounted on LC2. One located to view the package horizontally entering the cradle, and the second looking down through the cradle once it is vertical. As mentioned earlier, LC2 also contains a hydraulically operated Emergency Pusher that allows a package to be returned to LC1 (and from there successively back to Loading Conveyor 1) if feeding operations are to be aborted.

D-8b(11)(c): Destruction System

1. Detonation Chamber - The detonation chamber is a heated armored enclosure that accepts the munitions and provides a safe location where they can react to release their contents. The chamber consists of an upper and lower part which are sealed together during destruction operations, but which can separate in order to remove scrap materials periodically. The chamber sealing system uses hydraulic power to press the Upper and Lower DC parts together. The hydraulic power provides a closing force on 12 clamps. This creates a locking force that is sufficient to contain an estimated detonation load of at least 8kg TNT eq.
2. Locking System - The upper and lower parts of the DC are locked to each other with a Locking Mechanism during destruction. The Locking Mechanism consists of twelve (12) clamps that are hydraulically controlled. For the emptying procedure, the Locking clamps are lowered to the open position and the lower part of the DC is lowered and rotated downwards.
3. Locking Mechanism Seal System - The connection between upper and lower DC is sealed by rope gasket seals during the destruction process. There are two sets of rope gaskets, an upper and lower. An annular space exists in between the upper and lower rope gasket groupings. Should the upper rope gaskets fail, any exhaust that can escape the interior DC will be removed to the thermal oxidizer for treatment.
4. Lower DC Cooling System - To manage the temperature variations and resulting stresses on the Lower DC it can be cooled with a flow of ambient air. A Cooling Fan directs relatively cool air (ambient) into a compartment between the DC wall and the Cooling Cylinder. The air then turns at a flange on the DC and goes behind the Cooling Cylinder and then out via an air duct. This is depicted in the following two figures.
5. Scrap Handling System - The scrap from the DC is directed via a Scrap Funnel onto a vibrating scrap conveyor. Scrap is vibrated as it travels to a collection point which serves to separate and loose particulate matter from the scrap. The loose particulate that is generated is collected beneath the scrap conveyor in a container.
6. Air Heater - The Air Heater heats SDC sweep air as high as 932°F to aid the destruction process.
7. Buffer Tank - The Buffer tank provides an expansion volume for the gases produced during the destruction process smoothing pressure and volume surges from the DC. By smoothing such peaks, the design of downstream equipment is simplified, and the equipment is better able to operate near its optimum design flow rate. This allows better and more consistent operation of the downstream pollution control equipment.
    a) The Buffer Tank is comprised of a cylindrical tank with a cone shaped bottom all made of carbon steel. The inlet and outlet of the tank is configured in such a way that the tank also acts to remove large particles of ash and small metal fragments from the destruction process. These materials are collected in the bottom of the conical section and are periodically removed into a container for later disposal. The tank and a portion of the associated piping are insulated and equipped with electrical trace heating.
8. Orifice - The Orifice also helps to smooth the flow of gases presented to downstream equipment. It is mounted between the Buffer tank and the OTS between two pipe flanges.

9. Process Ventilation Cyclone, Filter and Fan - The Process Ventilation Fan drives the Process Ventilation System for the SDC. The Cyclone and Filter remove dust from the Process Ventilation. This dust is transferred to the air mainly from the scrap emptying sequence. The dust removed by both Cyclone and Filter collects in the bottom of each device and is periodically removed through a manual sluice system consisting of two valves into a container for later disposal.
10. Hydraulic Power Unit - The Hydraulic Power Unit provides power to operate the following systems:
    - The Lifting and Rotating System for the DC
    - The tilting of the Cradle of LC2
    - Closing the fragment valve
    - Gate 2
    - The Locking Clamp Cylinders of the DC
    - The Pusher
    - The Emergency Pusher of Loading Chamber 2

    It has a built in pre-charged accumulator in case of power failure.

D-8c: Electrical and Control System Specification

The electrical and control systems are configured so that all electrical cabinets are placed in an electrical room. A remote Control Room contains the Operator Stations and associated equipment. The entire operating plant is normally controlled and supervised from the Control Room. Remote control is accomplished using PC based operator stations where the process is visualized schematically in a number of process images (screens). All commands, monitoring and set point adjustments that will potentially be required can be performed from the Operator Console or Human Machine Interface (HMI). All the necessary process values, warnings or alarms are shown dynamically on the screen in real time.

The HMI Console is connected to a programmable logic controller (PLC system located in the electrical room or as an option in a modified 20ft container where the equipment for power distribution and motor control is also placed.

Field actuators and sensors are connected to the PLC-CPU via remote I/O modules. The communication is ensured with a field bus system, i.e. there are no single cables going from the electrical room to each sensor and actuator in the field, except the power to motors and heaters and emergency stop signals.

The system is controlled from the PLC using a series of automated sequences programmed in the PLC software. Each sequence controls a separate part of the whole process. The sequences are initialized by the operator from the HMI Console and can be stopped whenever necessary.

The plant operating personnel and equipment are protected by a number of interlocks which prevent harmful actions initialized by the operator or component malfunctions in the automatic sequences. In addition, the system has Emergency Stop buttons strategically located in the facility which de-energizes all components through hardware relays when activated.

Visual monitoring of operating areas is accomplished using a closure-circuit television (CCTV) camera System with a number of cameras in field. A central camera monitor is placed in the control room (or container). The cameras are connected so that all camera pictures are displayed on the same monitor. From a special monitor control panel, a variety of camera display configurations is possible depending on the operator preference or operational necessity.

D-8d: Process Control

The Control Room Operator controls the plant remotely from the control room. A camera system shows the loading trays on the conveyor in the loading room, on the conveyor in the SDC room and when the trays are entering loading chamber 1.

There are two modes of control of the Destruction Sequence. The Automatic mode automatically feeds the next tray of munitions to the SDC from the waiting position once the Destruction Timer reaches zero (0). The Control Room Operator monitors all operations via the control System Screens and Cameras. The Destruction Timer set point is determined by a controlled process for a specific munition type and can vary from munition to munition.

The second mode is the Semi- automatic Mode. In this mode when the Destruction Timer reaches zero (0) the Control Room Operator must engage the Control Screen to feed the next tray. As in the Auto Mode they must then monitor the progress of the tray and verify proper operation of the system via Control Screens and the camera system.

The OTS plant is a fully automated continuously running process during destruction operations. However, the SDC 1200 and OTS are integrated and have interlocks associated with them to prevent inadvertent feed if either system is not fully functional. During commissioning and maintenance, the plant can be operated from a local portable hand panel if necessary.

D-8e: Facility Layout

The facility layout includes the following:

1. A preparation area where incoming destruction objects (munitions, energetic material etc.) is loaded into the SDC Feeding Trays.
2. A feeding area where the prepared Feeding Trays are put on the conveyor system for loading.
3. A reinforced ground area (foundation) for the SDC with a discharge area easily accessible for handling of the scrap. The buffer tank and filter unit will also be placed in this area.
4. A control room/container, where the operators control and monitor the process.
5. A utility room/container for Compressed air etc.
6. A room/container for the electrical equipment.

D-8f: Operating Charge and Design Charge

The Dynasafe design charge rating of the SDC 1200 DC is 8.0 kg (or 17.65 lbs.) TNT equivalent. A whole M55 rocket has a feed event, operational charge of 7.62 kg (or 16.8 lbs.) TNT Equivalent, which is below the feed limit design charge.

D-8g: Off-Gas Treatment:

The SDC 1200 Facility is in closure and the Off-gas treatment system is inactive.This section is included for historical reference. The destruction process results in combustion by-products of gaseous, solid, and vapor form that are further treated in the OTS. The OTS is comprised of piping, heat trace, insulation, temperature measurements, temperature controllers, and a Buffer Tank with a bypass valve. The SDC, piping and Buffer Tank provide a primary containment boundary. Heat tracing, temperature measurements, insulation and controllers keep the temperature at the piping walls high enough to prevent condensation of agent vapors and explosives from accumulating on the piping walls. A secondary containment system is provided in the unlikely event of a leak from the primary containment.

The Buffer Tank works with a downstream orifice to prevent the pressure peaks that are created in the SDC by the destruction process from negatively impacting the downstream Off-Gas Treatment System, specifically the Thermal Oxidizer (THO). Descriptions of these components are provided below.

D-8g(1): Thermal Oxidizer (THO)

The off gases resulting from munitions processing in the SDC 1200 are transferred to a thermal oxidizer. The thermal oxidizer is designed to accept all gases from one feed cycle and is based on a retention time of two seconds or more at > 1832 °F. An additional flow of secondary air is automatically added to ensure an oxidizing environment. The gases to be treated are fed tangentially via a ring system to ensure proper treatment.

D-8g(2): Quench (QUE)

A Quench system, downstream of the THO, cools the off-gas to a temperature required by components further downstream. The Quench liquid cools the off-gas and absorbs part of the acid gasses formed by the upstream processes (Hydrofluoric Acid (HF) and Orthophosphoric Acid (H3PO4)). As the liquid in the QUE cools the Off Gas, it also collects contaminants (salts, particulates).

D-8g(3): Droplet Separator (DS)

The off-gas stream from the Quench contains large amounts of moisture as it is essentially at saturation for the temperature and pressure conditions in the system. This moisture must be removed. A horizontal Droplet Separator (DS) is placed in the off-gas stream to accomplish this. It uses a demister type pad which removes entrained liquid drops. The collected liquid is returned to the Quench Sump. The Droplet Separator package has a cleaning unit with a water distribution from both sides to periodically spray down the surfaces of the pad to remove any particulates that accumulate.

D-8g(4): Neutral Scrubber (NSC)

Once the bulk moisture is removed, the Neutral Scrubber (NSC) continues the treatment process. The NSC is a counter flow tower with a packed bed in the vertical column. The Off-Gas flue gas flows through the column from bottom to top. The washing liquid is sucked by one of the redundant pumps from the column sump and is continuously distributed at the top of the column. The liquid passes through the built-in packed bed from top to bottom. Using a packed bed, the interfacial area between the flue gas and scrubbing liquid increases and improves the absorption process. The entrainment of liquid droplets at the top of the column is prevented by a droplet separator.

The column is operated at a neutral to slightly alkaline pH. This is achieved by means of pH-controlled potassium hydroxide dosing. As a result, acidic components dissolved in the

scrubbing liquid are neutralized. As GB contains fluorine, treatment of GB in the SDC 1200 Facility will generate hydrogen fluoride in the off-gas, which will be processed through the OTS scrubber systems. Use of potassium hydroxide for pH control in the scrubber systems is preferred over sodium hydroxide since the solubility of potassium fluoride (e.g., ~100 g/100 ml at 77 °F) is substantially greater than that of sodium fluoride (e.g., ~4 g/100 ml at 77 °F). Use of potassium hydroxide leads to greater protection from potential precipitation in and fouling of the scrubber systems.

D-8g(5): Wet Electrostatic Precipitator (WEP)

The WEP uses electrostatic forces to remove particulate from the gas stream. Particle collection occurs in a collector section which consists of a variety of grounded tubes and high voltage discharge electrodes. A high voltage is applied to the discharge electrodes to both charge the particles and provide a high voltage field. The voltage on the discharge electrodes creates a corona discharge of electrons from high intensity ionization disks on the electrodes. This geometry concentrates the charging field in the zone between the disc and the collection tube. This disk-in-tube geometry allows for the formation of a stable, intense, electrostatic field for particle charging. As the electrons move from the discharge disk to the collector tube, some of them intercept particles in the gas stream which charges the particles. Once the particles are charged they move across the gas stream by the high voltage field where they deposit on the grounded collector tube.

D-8g(6): Moisture Removal System (MRS)

The Moisture Removal System removes the remaining excess moisture present in the off-gas in order to protect the ID Fans and Carbon Filter Unit. It consists of a Heat Exchanger (HEX), Moisture Separator, and a Chiller Unit.

The saturated off-gas is directed from the Wet Electrostatic Precipitator to the Heat Exchanger (HEX) where the off-gas passes around a set of cooling tubes. Chilled water is pumped through the tubes by the Chilled Water Pump (CWP). The Chilled Water temperature is controlled by an external Chiller Unit (AC). As the off-gas passes around the tubes, the chilled water inside the tubes causes the Off Gas to cool down and thus any remaining moisture to condense and be collected by the HX shell. The condensate is directed via a Moisture Separator (SEP) to the Temporary Condensate Tank (TCS) for collection. The Condensate Pump (CDP) redirects the reclaimed liquid back to the NSC sump. This requires less fresh water to be used from the external supply.

To complete the moisture removal process, a pair of temperature controlled electric heaters raise the off-gas temperature to a specified set point. This reduces the relative humidity of the gas stream to a level where the moisture still entrained in the off-gas will not condense in the Induced Draft Fans.

D-8g(7): Induced Draft Fans

The Induced Draft Fans provide the overall system draft and ensure the pressure of the entire OTS is maintained slightly below atmospheric pressure. The ID Fan speed is controlled by Variable Frequency Drives (VFD). The pressure is controlled by several pressure transmitters in the Thermal Oxidizer. The IDFs are in continuous operation while the plant is running. There are two fans for redundancy. If one fan fails, the other fan will automatically adjust to provide the necessary draft.

The quench, neutral scrubber, wet electrostatic precipitator and the moisture removal system creates wastewater in the OTS. As the liquid in the Quench cools the off-gas, it also collects contaminates (salts, particulates). The conductivity of the liquid is sampled continuously via an in-process sample system. When the conductivity reaches a predetermined value, a solenoid valve is automatically opened by the control system, bleeding the “dirty” water to a collection and buffering tank called the Bleed Water Tank (BWT). The wastewater from neutral scrubber mainly contain acids (HCl, H2SO4), salts of chlorine and sulfur, and dissolved/undissolved heavy metals. The wastewater from scrubbers is also sent to the BWT where the neutralization of the acids is carried out. The Bleed Water Tank consists of a 500 gallon skid mounted tank that captures the three waste streams before it will be discharged to a double walled frac tank located within permitted storage.

Water is sprayed to clean WEP of accumulated particles and they are collected in a Mist Water Tank (MWT). Water in MWT is filtered using Mist Water Filters (MWF) and used for spraying in WEP. When the particulate matter in MWT increases considerably then it is not safe for further recirculation and hence, the water is disposed of and fresh water is pumped into the WEP via the Fresh Water Tank (FWT).

D-8h: IONEX Filter Units

The off-gas leaving the ID Fans enters the IONEX filter unit, which is a necessary fine filtration step. The IONEX filter unit consists of multiple units of pre-filter, HEPA filter, and active carbon banks. The fine filtration step is essential for the removal of fine particles of dust and heavy metals. Thus, gases leaving the IONEX filter and carbon banks is relatively free of pollutants, the pollutants levels can be measured continuously with monitoring equipment. A filter unit is also included in the design to provide an additional measure of safety should an unforeseen circumstance occur. This system provides a continuous backup for the SDC 1200 System in the event of system malfunction. This final filter unit will ensure that, in the unlikely event any agent vapor or organic compounds remain, these contaminants will be captured. The OTS final filter unit design contains pre-filters, HEPA filters and carbon filters. Sampling ports between filters are provided to allow agent breakthrough monitoring for early warning of potential breakthrough.The treated off gas is released to the downstream final filter unit. An agent monitoring (MINICAMS®) port will be placed between the first and second bed of carbon media for agent monitoring. DAAMS is used to monitor the stack gas stream for GB or VX chemical nerve agent.

D-8i: Operating Conditions

Operatign conditions were submitted as a Compliance Schedule Item.

D-8j: Monitoring

The treated off-gas is released to the downstream final filter unit. An agent monitoring (MINICAMS®) port will be placed between the first and second bed of carbon media for agent monitoring. DAAMS is used to monitor the stack gas stream for chemical nerve agent GB or VX. These sampling and analysis instruments are located in the Monitoring House. Air monitoring will include MINICAMS, near-real time monitoring. The monitoring alarm setpoints for GB is 0.5 VSL at the HVAC Carbon Filter Unit Exhaust and 1 VSL at the OTS Stack. The monitoring alarm setpoints for VX is 0.5 VSL at the HVAC Carbon Filter Unit Exhaust and 10 VSL at the OTS Stack. Confirmation monitoring will be performed using DAAMS methodologies.

D-8k: Facility Closure

Specific information regarding facility closure is addressed in Part I: Closure Plan, Post-Closure Plans and Financial Requirements

D-8l: Disposal Units [401 KAR 39:060 Section 5, 39:090 Section 1 & 40 CFR 270.23(a) and 264.603]

Wastes are not placed in land disposal units at the SDC 1200 Facility; therefore, the requirements for this section are not applicable.

D-8m: Site Assessments [401 KAR 39:060 Section 5 & 8 40 CFR 270.23(b)]

Figures providing information on the surrounding land use, meteorology, flood zones, and geology associated with the SDC 1200 Facility Permit Renewal Request can be found in Volume II. The location of the facility is adjacent to the BGCAPP Main Plant. The location information was included and presented in the NEPA EA prepared for the addition of the SDC 1200 unit to BGAD. This EA indicated there were no significant impacts to the environment, workers, or general public associated with the system.

D-8n: Potential Exposure Pathways [401 KAR 39:060 Section 5 & 40 CFR 124 and 270.23(c)]

The potential pathways of exposure of humans or environmental receptors to hazardous waste or hazardous constituents and the potential magnitude and nature of such exposures will be addressed in a multi-pathway human health risk assessment (HHRA) to developed for the SDC-1200 system.

D-8o: Effectiveness of Treatment [401 KAR 39:060 Section 5 & 40 CFR 270.23(d)]

Based on prior demonstration and research from previous chemical demilitarization sites, the ability to demonstrate a Destruction and Removal Efficiency of 99.9999% or greater is achievable utilizing SDC technology.

D-8p: Additional Information [401 KAR 39:060 Section 5 & 40 CFR 270.23e]

The human health risk assessment (HHRA) evaluates and discusses the air emissions provided by the SDC 1200 design. Noise from the facility does not affect surrounding populations due to relatively low expected noise levels and the substantial distance between the facility and the nearest resident. Workers' levels of occupational noise exposure can exceed Occupational Safety and Health Administration (OSHA) permissible exposures limits, but the facility provides workers with suitable hearing protection and medical surveillance.

D-8q: Requirements Specific to OB/OD Units or Geologic Repositories used for Storage/ Treatment of Hazardous Waste [401 KAR 39:060 Section 5]

Not applicable. The SDC 1200 Facility is not an open burning/open detonation (OB/OD) unit.

Part E: Groundwater Monitoring [401 KAR 39:090 Section 8 & 40 CFR 264.90(b)(2)]

The groundwater monitoring requirements for this section apply to surface impoundments, waste piles, land treatment units, and landfills. None of these types of hazardous waste management units will be included in SDC 1200 Facility; therefore, groundwater monitoring is not required.

Part F: Procedures to Prevent Hazards

This Part contains information concerning procedures to prevent hazards in accordance with Federal and Commonwealth of Kentucky RCRA regulations. These regulations require a description of the security procedures and equipment, inspection schedules, justification for a waiver of preparedness and prevention requirements, spill prevention containment and countermeasures plan, and prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes. A request to waive security procedures and equipment requirements is not being made.

F-1: Security [401 KAR 39:090 Section 1& 40 CFR 264.14]

F-1a: Waiver [401 KAR 39:090 Section 1& 40 CFR 264.14(a)(1) & (2)]

Not applicable. Waiver not requested or sought. Paragraph F-1b describes the security measures to be used at the SDC 1200 Facility site to prevent hazards to intruders, livestock, workers, or the public. These security provisions prevent physical contact with waste, structures, or equipment within the active portion of the facility.

F-1a(1): Injury to Intruder

Due to the nature of the materials being stored and treated in the SDC 1200 Facility, the security measures [redacted] at the SDC 1200 Facility significantly exceed those found at other RCRA permitted treatment, storage and disposal facilities (TSDFs). As described in the following paragraphs, the fencing and barriers and other security measures control and prevent access of intruders and/or livestock to the SDC 1200 Facility and surrounding areas. These measures are more than adequate to prevent injury to unknowing or unauthorized persons or livestock.

F-1a(2): Violation of Chapter 34 Requirements Caused by Intruder

The same security measures to prevent access by unknowing or unauthorized personnel and livestock also serve to prevent disturbance of waste or equipment at the SDC 1200 Facility by an intruder.

F-1b: Security Procedures and Equipment [401 KAR 39:090 Section 1& 40 CFR 264.14 (b)]

The SDC 1200 Facility has both 24-hour surveillance by security personnel and barriers/means to control entry to the facility. The RCRA regulations require these measures to prevent unauthorized entry of personnel and livestock. The paragraphs in this Part describe how the SDC 1200 Facility meets this requirement.

F-1b(1): 24-Hour Surveillance System [401 KAR 39:090 Section 1 & 40 CFR 264.14(b)(1)]

The general security and surveillance measures at the SDC 1200 Facility are more restrictive than those found at other hazardous waste treatment, storage, and disposal facilities (TSDFs). These security and surveillance measures include:

1. [redacted]
2. The BGAD Commander authorizes use of any force necessary to prevent unauthorized entry. Warning signs (“DOD authorizes the use of deadly force to prevent unauthorized entry to the site”) are posted to warn personnel who unknowingly attempt to enter restricted areas.
3. Entry to the SDC 1200 Facility requires access through gates and barriers staffed by security personnel or getting over/through the six foot high fences erected to prevent unauthorized personnel or animals from entering the restricted areas.
    a. Access to areas where chemical weapons and/or agent (i.e., waste number N003) are stored and processed (e.g., chemical exclusion areas) requires additional security measures. Only authorized personnel with badges and/or on an access roster can enter these areas. Security personnel are located at the access point(s) for each of these areas and check badges and authorization of persons entering these areas to ensure personnel have the required authorization to enter the area.
    b. Surveillance includes CCTV cameras at key locations around and inside the facility.

The SDC 1200 Facility security and surveillance measures prevent entry of unknowing persons, intruders, and livestock onto the SDC 1200 Facility grounds, and buildings. SDC 1200 Facility personnel can communicate directly and through the combined BGAD Operations Center with security should any unusual security issues arise.

F-1b(2): Barrier and Means to Control Entry [401 KAR 39:090 Section 1 & 40 CFR 264.14(b)(2)]

The SDC 1200 Facility has both barriers and other means to control entry as part of its security and these are in addition to the 24-hour surveillance system as described above.

F-1b(2)(a): Barrier [401 KAR 39:090 Section 1& 40 CFR 264.14(b)(2)(i)]

Barriers prevent entry of unauthorized personnel and livestock into the SDC 1200 Facility. Examples of the use of these barriers include:

Chain link fencing topped with barb wire surrounds the BGAD property boundaries and the SDC 1200 Facility.

Fencing is maintained in good repair and entry through the fencing is only provided at access points controlled by security personnel.

Access to the ESM is blocked, guarded or locked when access for agent operations is not required. The control measure selected will prevent unauthorized access to muntions.

F-1b(2)(b): Means to Control Entry [401 KAR 39:090 Section 1& 40 CFR 264.14(b)(2)(ii)]

[redacted]

F-1c: Access Limited to Persons and Vehicles Displaying Appropriate Identification: Warning Signs [401 KAR 39:090 Section 1 & 40 CFR 264.14(c)]

Signs warning, in English, “Danger – Unauthorized Personnel Keep Out” are posted to identify the area as restricted and dangerous and that unauthorized entry is illegal, are posted along the outer perimeter fence surrounding the BGAD at intervals of 500 feet or less and near all access gates. These signs are easily visible at a distance of 25 feet. Large signs (i.e., approximately 4 feet by 6 feet in size) describing the “Conditions of Entry” are posted at each gate and warn of the possible consequences of unauthorized entry.

Warning signs at the SDC 1200 Facility chemical agent handling area are approximately 5 feet by 4 feet in size and posted at 50-foot intervals around the SDC 1200 Facility perimeter. The legends “Warning,” “Danger,” “Restricted Area,” and “Use of Deadly Force Authorized to Prevent Unauthorized Entry” are clearly legible at distances of 25 feet or more.

Warning signs identifying the Fire Division, the Chemical Hazard, and the Explosive Hazard Class are at the SDC 1200 Facility entrance, on the ESM, and on the EB.

F-2: Inspection Schedule [401 KAR 39:090 Section 1 & 40 CFR 264.15]

F-2a: General Inspection Requirements [401 KAR 39:090 Section 1 and 39:060 Section 5 & 40 CFR 264.15(a)-(b), and 270.14(b)(5)]

The scheduled inspections of the SDC 1200 Facility and the container storage area (ESM) include, but are not limited to, containers, Subpart X system, containment, safety, maintenance, emergency, and operating equipment needed to prevent, detect, or respond to environmental or human health hazards. The BGCAPP Main Plant Project Document Control Center (PDCC) maintains the completed inspections.

Each inspection record includes:

1. Date and time of inspection
2. Name and signature of inspector
3. Notation of any observations made
4. Repairs made or remedial actions taken at the time of the inspection will be recorded with the observation

F-2a(1): Types of Problems [401 KAR 39:090 Section 1 & 40 CFR 264.15(b)(3)]

Figure F-1 identifies the typical criteria and schedule used for ESM (container storage) and Subpart X Unit (SDC System) inspections.

F-2a(2): Frequency of Inspection [401 KAR 39:090 Section 1 & 40 CFR 264.15(b)(4)]

Figure F-1 summarizes the scheduled frequency of inspection for features, subsystems, and systems in the ESM and the SDC System [the Miscellaneous (Subpart X) Unit]. Basis for selection of these frequencies was the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections.

F-2b: Specific Process Inspection Requirements [401 KAR 39:090, Section 1 & 40 CFR 264.15(b)(4)]

F-2b(1): Container Inspections [401 KAR 39:090, Section 1 & 40 CFR 264.174]

Figure F-1 shows an inspection schedule for the inspections of the permitted areas within the SDC 1200 Facility. SDC 1200 Facility personnel conduct weekly inspections of munitions in the ESM for deterioration, corrosion, spills, and evidence of leakage. These weekly inspections include a visual inspection for obstructions, inspection of the secondary containment for damage to coating, damage to concrete supporting the coating, and proper maintenance of aisle space between the rows of munitions in pallets/skids within the ESM.

F-2b(2): Tank System Inspection [401 KAR 39:090, Section 1 & 40 CFR 264.195]

BGCAPP conducts daily inspections of waste tank and Subpart X systems. The inspections address overfill and spill control equipment, aboveground portions of the tank and Subpart X systems, data gathered from monitoring equipment, construction materials, and the area immediately surrounding the externally accessible portion of the tank and Subpart X systems as well as the secondary containment system. Tanks and secondary containment are inspected daily through use of CCTV or by facility personnel, based on their location in the facility. Additional criteria evaluated during the daily inspections include the evaluation of the presence of corrosion or spills/releases of hazardous waste as well as the condition of ancillary equipment. Attachment 2 shows a sample inspection checklist for the tank system and Subpart X inspection activities.

F-2b(3)Waste Pile Inspections [401 KAR 39:090 Section 1 & 40 CFR 264.254]

Not applicable. The SDC 1200 Facility does not have any waste piles.

F-2b(4): Surface Impoundment Inspections [401 KAR 39:090 Section 1 & 40 CFR 264.226]

Not applicable. The SDC 1200 Facility does not have any surface impoundments.

F-2b(5): Incinerator Inspections [401 KAR 39:090 Section 1 & 40 CFR 264.347]

Not applicable. The SDC 1200 Facility does not include an incinerator.

F-2b(6): Landfill Inspections [401 KAR 39:090 Section 1 & 40 CFR 264.303]

Not applicable. The SDC 1200 Facility does not have any landfills.

F-2b(7): Land Treatment Inspections [401 KAR 39:090 Section 1 & 40 CFR 264.278]

Not applicable. The SDC 1200 Facility does not have any land treatment units.

F-2b(8): SDC System (Subpart X) Inspections [401 KAR 39:090 Section 1 & 40 CFR 264.602]

The SDC 1200 Facility personnel conduct daily, weekly, monthly, quarterly and semi-annual inspections of the Subpart X system. Figure F-1 shows the typical inspection criteria and schedule for each of these inspections.

The example daily or weekly checklists used for the SDC 1200 Facility inspections (for the ESM and SDC System) are attached as Figure F-2 and Figure F-3. These example inspection checklists include:

1. Date and times of inspections
2. Names and signatures of inspectors
3. Observations made during inspection

F-2c: Remedial Action [401 KAR 39:090 Section 1 & 40 CFR 264.15(b)(5)(c)]

The operations personnel conducting the inspections of the specific areas or equipment inspect based on criteria identified on Figure F-1, Figure F-2, and Figure F-3 and record problems found on the inspection checklist.

F-2d: Inspection Log [401 KAR 39:090 Section 1 & 40 CFR 264.15(b)(5)(d)]

Not applicable. No waiver of Inspection Log is required or being requested.

F-3: Waiver of Preparedness & Prevention Requirements [401 KAR 39:060, Section 5 (6) & 40 CFR 270.14 (b)(6)]

Not applicable. A waiver of preparedness and prevention requirements is not requested or sought.

F-3a: Equipment Requirements [401 KAR 39:090 Section 1 & 40 CFR 264.32]

SDC 1200 Facility will have the following equipment as required by 40 CFR 264.32.

F-3a(1): Internal Communications [401 KAR 39:090 Section 1 & 40 CFR 264.32(a)]

The SDC 1200 Facility maintains an internal communications system consisting of hard-wired telephones, two-way hand-held radios, cellular phones, a public address system, and audible signals. This system provides a combination of voice and signal information to SDC 1200 Facility employees.

F-3a(2): External Communications [401 KAR 39:090 Section 1 & 40 CFR 264.32(b)]

The SDC 1200 Facility maintains an external communications system consisting of hard-wired telephones, two-way hand-held radios, and cellular phones.

F-3a(3): Emergency Equipment [401 KAR 39:090 Section 1 & 40 CFR 264.32(c)]

The SDC 1200 Facility has portable fire extinguishers in all buildings [as required by the National Fire Protection Association (NFPA)], access control points, motorized MHE, Government vehicles, and the various storage areas. In or near chemical agent and chemical handling areas (i.e., EB and ESM), pre-positioned spill control and decontamination equipment for emergencies are provided and maintained. Showers units and eyewash stations are positioned to support decontamination in these areas.

F-3a(4): Water for Fire Control [401 KAR 39:090 Section 1 & 40 CFR 264.32(d)]

An aqueous sprinkler system for fire protection is provided in the EB, and hydrants to provide water for fire control are located on the north and west sides of the building. The BGCAPP Main Plant also has a fire hydrant system with water supplied by the BGAD throughout the Main Plant. These hydrants are outside the SDC 1200 Facility but are accessible by responding BGAD Fire Department personnel if necessary.

F-3b: Aisle Space Requirements [401 KAR 39:090 Section 1 & 40 CFR 264.35]

Not applicable. No waiver of the adequate aisle space requirement is required or being requested.

F-4: Preventive Procedures, Structures, and Equipment [401 KAR 39:060, Section 5 & 40 CFR 270.14(b)(8)]

The following paragraphs provide information on the procedures, structures, and equipment used to prevent hazards in the SDC 1200 Facility.

F-4a: Loading and Unloading Operations [401 KAR 39:060, Section 5 & 40 CFR 270.14(b)(8)(i)]

Loading and unloading of munitions is discussed in Section D. The overview of the Waste Transport, Waste Storage; Facility Design; and Destruction Process is discussed in Part D. The loading and unloading of other materials and wastes will take place in this same area using material handling equipment.

F-4b: Runoff Prevention [401 KAR 39:060, Section 5& 40 CFR 270.14(b)(8)(ii)]

The following features and measures are used to control runoff from this facility:

1. Vapor containment within the EB also provides liquid containment.
2. The roof of the EB diverts storm water away from the treatment unit and the hazardous wastes it treats.
3. Storage of the munitions is within a structure (ESM) that complies with RCRA requirements, and is inspected at least weekly.
4. The ESM incorporates a coating that is supported by concrete. The coating has been tested and is resistant and sufficiently impervious to chemical agent such that it will contain leaks, spills, and accumulated precipitation until the liquids can be removed. Secondary containment via containment units provides sufficient volume to contain a spill.
5. Storm water is prevented from flowing into the ESM by the magazine roof, and by the design of the secondary containment and entry into the magazine (e.g., surrounding areas slope away from the magazine and the entry to the magazine is also raised to prevent the entry of storm water)

6. Runoff prevention utilized at the SDC 1200 Facility also includes a storm-water collection system that drains to the nearby BGCAPP Main Plant storm-water detention basin.

F-4c: Water Supplies [401 KAR 39:060, Section 5& 40 CFR 270.14(b)(8)(iii)]

Public drinking water wells or reservoirs are not located within one mile of the SDC 1200 Facility boundary and the design features of the facility will prevent runoff from reaching surface water or drinking water supplies. The SDC 1200 Facility also has an emergency generator to provide power and allow safe shutdown of the treatment process should interruption of utility provided power occur. This power is also used to power the cascade ventilation system and prevent unplanned releases to the atmosphere that could contaminate any water supplies.

F-4d: Equipment and Power Failures [401 KAR 39:060, Section 5& 40 CFR 270.14(b)(8)(iv)]

Critical equipment within the SDC 1200 Facility is provided emergency power via emergency generator and battery backup if a power failure occurs during SDC 1200 Facility operations. In addition, the Control System is designed to allow a safe and rapid transition of the SDC System equipment to a standby mode and eventually a shutdown mode should the power interruption continue.

F-4e: Personnel Protection Equipment [401 KAR 39:060, Section 5 & 40 CFR 270.14(b)(8)(v)]

The protection of SDC 1200 Facility personnel involves engineering controls through design of the SDC System, administrative procedures, and PPE.

(1) Facility Design

The first level of protection includes the design of the SDC 1200 Facility to eliminate or reduce the hazard to the maximum extent possible. The combination of cascade ventilation, continuous air monitoring, and control room observation of processing and personnel provides a design with extensive built-in personnel protection features.

(2) Administrative Controls

SDC 1200 Facility personnel perform processing, maintenance, and other work activities in accordance with procedures. These procedures provide requirements that control how personnel perform specific work activities. For example, the BPBG Team provides personnel protection procedures for lockout/tag out, monitoring of chemical agent work areas, and emergency response to chemical spills.

(3) Use and Selection of PPE

Hazard identification; routes of exposure (inhalation, skin absorption, ingestion, or injection); and performance of the PPE material as a barrier to potential hazards determines the selection of PPE to be worn during agent and non-agent related activities. Other factors in the selection process include matching the PPE to work requirements and task-specific conditions, task duration, and potential for heat stress. Selecting the appropriate level of dress also includes the requirements provided in DA PAM 385-61 and those required for handling explosive munitions or components. This Department of Army Pamphlet (DA PAM), titled Toxic Chemical Agent Safety Standards, contains requirements for demilitarization facilities, describes the minimum safety criteria, guidance, and procedures for use in processing, handling, storage, transportation, disposal, and decontamination of chemical agents.

When responding to a chemical agent or industrial chemical release, the On Scene Coordinator (OSC), with assistance/approval of the Safety representative, selects the correct level of PPE for each emergency response activity and situation (Refer to Part G for additional information on the SDC 1200 Facility emergency response activities). The material safety data sheet (MSDS/SDS) for the chemical involved, National Institute for Occupational Safety and Health guidance, the DOT Emergency Response Guidebook, and SDC 1200 Facility emergency response procedures are references used in making this selection. The PPE selection made by the OSC also considers the work requirements of the response action, to ensure the durability of the PPE is appropriate for that work.

(4) General Safety Criteria for Bulk Hazardous Chemicals

Emergency eyewash stations and showers are located near hazardous-liquid handling areas (e.g., near the OTS scrubbers) except for work areas in which only PPE are used.

F-4f: Atmosphere [401 KAR 39:060, Section 5& 40 CFR 270.14(b)(8)(vi)]

Air monitoring for the SDC 1200 facility will be conducted to provide a safe environment for the workforce, indicate operating conditions of the facility, and ensure environmental compliance. Monitoring systems methodology, equipment and locations have been carefully chosen to effectively satisfy these requirements. These systems are designed to monitor for the chemical warfare agent GB (Sarin) or VX and will be operational and online at all times while storing, transporting and/or processing munitions at the facility. Airborne and related exposure limits have been established by the Department of the Army (DA) in conjunction with guidelines from the Centers for Disease Control and Prevention (CDC) and published in DA PAM 385-61, as well as the Federal Register (Volume 69, No.85, May 3, 2004, page 24164) for implementation and use in agent monitoring. Table F-1 provides more details on these levels and concentrations.

Table F-1: Airborne and Related Exposure Limits for (GB) Sarin

Level	GPL	WPL	STEL[(a)]	VSL[(b)]	IDLH[(d)]
Exposure Scenario	24 hr/daily lifetime time weighted average (TWA)	8 hrs 8 hr daily/ multi yr time weighted average (TWA.	Occasional(4 x day) 15 minute exposure	Variable	Acute 30 minute exposure
Limit (mg/m^3)	0.000001 [1x10E-6]	0.00003 [3x10E-5]	0.0001 [1x10E-4]	0.0001 [1x10E-4]	0.1
Monitoring Method[(e)(f)]	Historic	Historic	Near real-time (NRT)	NRT	NRT

Table F-1b: Airborne and Related Exposure Limits for VX

Level	GPL	WPL	STEL[(a)]	VSL[(b)]
Averaging Time	24 hrs.	12 hrs.	15 min	Variable
Limit (mg/m^3)	$6x10^{-7}$	$1x10^{-6}$	$1x10^{-5}$	$1x10^{-5}$
Monitoring Method[(e)(f)]	Historic	Historic	Near real-time (NRT)	NRT

Notes:

(a) The STEL concentration is based on a 15-minute exposure for an unprotected worker, but is evaluated with an instrument using the shortest analytic cycle time practical to obtain accurate results. Since most NRT cycle times are less than 15min (typically 5-6min), confirmed readings, and durations are used to calculate whether the STEL has been reached or exceeded.

(b) The VSL is an agent vapor concentration-only value independent of time. As such, it is used to define a level of cleanliness for items, wastes, engineering controls systems (e.g., filter beds and vestibules) and facilities under specific environmental conditions. VSL is the readout level of certain NRT monitors and the value is applied to process or operational monitoring as opposed to worker exposure.

(c) The source emission limit (SEL) or allowable stack concentration (ASC) are vapor agent concentration values that are independent of time are measured with NRT instruments. The measured value is used for modeling and to ensure the GPL is not exceeded at the installation boundary. The higher concentration is used because of the moisture present in the air stream exiting the stack and the need to dilute this air prior to measurement with a MINICAMS®.

(d) Immediately dangerous to life or health (IDLH) monitoring with an NRT typically requires additional sample conditioning equipment to keep high levels of agent from saturating the detector.

(e) Historic monitoring is typically used where the sample analyzed represents an extended period of time and the results are not known until laboratory analysis is completed after the sampling event has been completed. As a result, AELs using historic monitoring are set at levels at which health effects are not expected to occur.

(f) Near real-time monitoring is conducted with instruments that have the capability to collect, analyze, and report or display results within 15 minutes. They also provide audible and remote alarms when levels are detected at, or above, a specific alarm set point.

All chemical agent air monitoring is accomplished using two types of systems – MINICAMS® and DAAMS. The MINICAMS® is an automated, near real-time (NRT) air monitoring system with local and remote audible and visible alarm capabilities. DAAMS collect samples via an adsorbent tube over a period of time and are brought back to the Laboratory. The DAAMS tubes are subsequently analyzed either for historical documentation or as a confirmation of a MINICAMS® reading. The MINCAMS® and DAAMS instruments are calibrated by injecting a known amount of chemical agent (liquid injection) into the sample inlet for each of the systems. The result is recorded as a calibration point that serves as a reference for all subsequent readings. DAAMS calibrations generally cover an analytical detection range, while MINICAMS® focus their calibration specifically at the monitoring level selected. MINCAMS® configurations are available to detect and quantify allowable stack concentration (ASC), IDLH and VSL agent concentrations, while the DAAMS are used to collect samples for confirmation of MINICAMS® alarms and serve as primary monitoring in areas not monitored by MINICAMS®.

The ESM atmosphere, filter mid-bed and stack will be monitored continuously using a NRT system or MINICAMS® (with co-located DAAMS for confirmation) unless the unit is off-line for maintenance or challenges. NRT monitoring will be operating continuously when chemical munitions are present inside the ESM. This includes time periods when munitions are being loaded into or removed from the ESM. Monitoring is not required if chemical munitions are not present in the ESM.

The ESM will be equipped with a permanent IONEX Model CD1000 filter system. The filter system is designed to handle up to 1000 cfm air flow and consists of a pre-filter, a HEPA filter, a charcoal filter and a test section (referred to as the ‘mid-bed’). From this point, the filter train continues with a second charcoal filter followed by another HEPA filter. The exhaust filtration unit is connected to the ESM in such a fashion as to provide negative pressure within the facility with respect to the air outside the facility. MINICAMS and DAAMS monitoring locations points are located within the ESM, at the filter mid-bed and at the IONEX Model CD1000 filter stack. The combination of air monitoring and the use of the permanent IONEX Model CD1000 filter unit will be used to provide engineering controls to prevent agent releases from the magazine into the environment. Monitoring at 1.0 VSL (within 95% confidence) at the ESM stack will be used for compliance criteria.

The atmosphere within the EB is vented through a closed HVAC system to a filter train before exiting to the environment through an exhaust fan and HVAC stack. This filter train consists of a pre-filter, a HEPA filter, a charcoal filter and a test section (referred to as the ‘mid-bed’). From this point, the filter train continues with a second charcoal filter followed by another HEPA filter. The exhaust filtration unit is connected to the EB in such a fashion as to provide negative pressure within the facility with respect to the air outside the facility. Whenever the doors are closed and operations are being conducted, the atmosphere within the facility will be maintained under negative pressure to ensure any potential agent vapors present are captured by the carbon filtration system and not released to the environment. The filter mid-beds will be continuously monitored for the presence of agent vapors using MINICAMS®. In addition, a DAAMS station will also be located at the filter mid-bed. The filter stack will be monitored using MINICAMS® with co-located DAAMS at 1.0 VSL (within 95% confidence) as compliance criteria. Any confirmed detection of agent at the filter mid-bed will necessitate filter replacement. DAAMS tubes located at the stack will be analyzed only in the event of an alarm at the stack.

Another potential air source from within the SDC 1200 Facility to the atmosphere is the exhaust from the SDC System. This exhaust flows through an OTS described in section D-8a((e)) of this permit renewal. The off gas is released to a downstream carbon filter unit similar to the HVAC filter train described above before exiting to the environment through an exhaust fan and stack. The exhaust fans and stacks for the HVAC filter and OTS filter are completely separate. Additionally, the OTS exhaust stack will be monitored continuously during operations at the SEL using NRT monitors with co-located DAAMS tubes for confirmation. Any confirmed agent detection 1 SEL at the OTS exhaust stack will be used for compliance criteria. With the exception of monitoring DAAMS tubes located at the mid-bed of the IONEX 4000 filter once every 28 days under the Laboratory Quality Control Program, DAAMS tubes will be analyzed only in the event of an alarm at the stack. Any confirmed detection of agent at the filter mid-bed will necessitate filter replacement.

Atmospheric NRT monitoring, along with confirmation and historical monitoring, also will occur at various other locations within the EB. This monitoring will be done to ensure adequate worker protection and process controls are in place. The monitoring configurations within the SDC 1200 Facility will vary depending on the hazard category and monitoring level required. The number of monitoring stations, exact sample locations, and monitoring levels will be determined by the Safety and Health (S&H) Department in compliance with programmatic guidance.

The EB also is equipped with a vestibule to allow for processing of munitions, equipment, and personnel into the building and allow for controlled processing of scrap, waste, and personnel out of the building under engineering controls. The vestibule is designed with adequate air exchanges so the air can be monitored for the presence of agent before allowing items to be released from inside the EB. The EB is equipped with a vestibule to allow for processing of munitions, equipment, and personnel into the building and allow for controlled processing of scrap, waste, and personnel out of the building under engineering controls. In the event any of the monitored locations within the SDC 1200 Facility exceed agent alarm set points, this vestibule room will be monitored with MINICAMS® for a minimum of two cycles before personnel or items in the facility exit.

Personnel will be wearing PPE appropriate for the work being performed and the area within which they are working. If workers are in a Category C Area during an alarm event, workers will don respiratory protection carried with them and move to the vestibule for egress clearance. Workers in higher Category areas, where agent vapors or liquid agent may be present, would be wearing PPE appropriate to prevent both liquid and vapor exposures. Personnel in this higher level of PPE can move to the vestibule for clearance prior to egress or remain to complete their work activities due to the higher level of PPE worn. The decision to leave or complete work assigned will be dependent on concentration of agent detected and other details associated with the release (e.g., explosion or fire involved, reason for release, and condition of any casualties).

In the event agent readings are above the 1 VSL, the items will remain under engineering controls. The items will be placed back into the EB for further decontamination and then will be re-processed and monitored through the vestibule.

Finally, the atmosphere for both the general public and environment surrounding the installation boundary must be protected at or below the GPL level. Air monitoring at eight permanent stations located around the BGCAPP perimeter (including the SDC 1200 Facility) will be performed. This monitoring will be historical monitoring using DAAMS tubes. In the highly unlikely event a chemical agent release occurs outside engineering controls, the results of perimeter monitoring will be used to determine if the GPL has been exceeded at the perimeter of the BGCAPP.

F-5: Prevention of Reaction of Ignitable, Reactive, or Incompatible Wastes [401 KAR 39:060, Section 5 & 40 CFR 270.14(b)(9)]

F-5a: Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes [401 KAR 39:090 Section 1 & 40 CFR 264.17 and 264.17(c)]

(1) Open Flames, Smoking, Welding or Cutting, Heat/Hot Surfaces and Sparks

Because the SDC 1200 Facility manages chemical nerve agents GB, VX and explosives containned in rockets the BPBG Team prohibits smoking and open flames without a permit. A smoking area will exist at a specific location within the SDC 1200 Facility. Signs will be posted indicating smoking is authorized only in this designated area. No smoking, cutting, welding, or any other spark-producing operations occur without a permit in any hazardous waste storage area with the waste present. Any cutting or welding operations require a “Hot Work Permit.” Signs are posted to prohibit any hot work without a permit. Design of the SDC System equipment prevents accidental ignition or reaction of chemical agent and explosives. The BPBG Team prohibits “hot” cutting (e.g., with oxyacetylene torch) and welding within the process areas of the SDC 1200 Facility while wastes are present in those areas, unless alternative mitigation measures are applied (e.g., use of fire blankets or other barriers). SDC 1200 Facility equipment grounding prevents the transfer of electrostatic charges to the munitions.

(2) Response to Fires

The BPBG Team considers a fire in any part of the SDC 1200 Facility as a serious event requiring immediate attention and corrective action. SDC 1200 Facility personnel immediately report all fires inside the facility, and initiate appropriate response.

F-5b: General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste [40 CFR 264.17(a) and (b)]

General precautions for handling the ignitable wastes (small amount of explosive in the M110 155mm projectiles) include the following:

1. The design and construction of the SDC 1200 Facility (i.e., DC and ESM) include precautions for chemical agent-filled munitions storage, handling and processing areas (e.g., lightning protection, engineering controls) to meet U.S. Army safety standards.
2. Dusts and vapors released from treatment in the DC are controlled by the OTS. The DC provides containment for ignition during deflagration and detonation events.
3. Within the scrap handling conveyor system, equipment also collects and removes dust.
4. Structural integrity of the DC controls the blast impacts associated with the deflagration or detonation of these munitions. The design of this chamber has been tested and proven in Germany and Anniston, AL. The inner and outer chambers are also inspected as part of the inspection plan to ensure the DC continues to control the effects of munitions treatment.

These general precautions, design of the SDC System, and procedures mitigate potential hazards. In the event of a commercial power interruption, the emergency power supplies (UPS and emergency generator) allow for the safe shutdown of the SDC System and provide additional protection of human health and the environment.

F-5c: Management of Ignitable or Reactive Wastes in Containers [401 KAR 39:090 Section 1 & 40 CFR 264.176]

Containers holding ignitable wastes are located more than 15 meters (50 feet) from the BGAD facility property line due to the distance of the SDC 1200 Facility from the BGAD boundaries. Storage of containers (i.e., projectiles, over-packed projectiles, and DOT bottles) prior to processing occurs in the ESM. This magazine has design features for safe storage of these items (e.g., lightning protection and monitoring for potential agent vapor emissions).

The BPBG Team does not expect to generate reactive wastes for storage in containers (i.e., in <90-day storage). However, should this occur, the containers of reactive waste would be placed on a containment pallet separated from other wastes by a distance of at least 4 feet, and located more than 50 feet from the SDC 1200 Facility property line. Storage is within the boundaries set forth in 40 CFR 270.15(c) and 264.176 and details of the management of these wastes are provided in D-1, Containers and details of the management of these wastes are provided in section D-1, Containers. The containment pallets have a secondary containment capacity of at least 55 gallons. That is more than 10 percent of the maximum storage capacity of the containers on the containment pallet and equal to or greater than a single 55-gallon drum.

F-5d: Management of Incompatible Wastes in Containers [40 CFR 264.177(a) and (b), 264.17(b) and (c)]

The BPBG Team does not expect incompatible hazardous waste generation in facility processes. Incompatible wastes, if generated, are not stored together in the same container. Knowledgeable SDC 1200 Facility personnel wash empty containers before re-using for wastes. If questions arise about whether wastes are compatible, laboratory personnel conduct incompatibility determinations prior to storing containers near each other. Only the same waste stream is stored in a container. Incompatible wastes in separate containers are either stored in separate containments or stored (if liquid) on separate containment pallets.

F-5e: Management of Ignitable or Reactive Wastes in Tanks [401 KAR 39:090 Section 1 & 40 CFR 264.198]

Not applicable. Ignitable or reactive wastes will not be managed in SDC 1200 Facility tanks. The SDC 1200 Facility does not use tanks for management of wastes.

F-5f: Incompatible Wastes in Tanks [401 KAR 39:090 Section 1 & 40 CFR 264.199]

Not applicable. Incompatible wastes will not be managed in SDC 1200 Facility tanks. The SDC 1200 Facility does not use tanks for management of wastes.

F-5g: Ignitable/Reactive Wastes for Waste Piles [401 KAR 39:090 Section 1 & 40 CFR 264.256 and 264.17(b)]

Not applicable. The SDC 1200 Facility does not use waste piles.

F-5h: Incompatible Wastes in Waste Piles [401 KAR 39:090 Section 1 & 40 CFR 264.257 and 264.17(b)]

Not applicable. The SDC 1200 Facility does not use waste piles.

F-5i: Ignitable/Reactive Wastes in Surface Impoundments [401 KAR 39:090 Section 1 & 40 CFR 264.229 and 264.17(b)]

Not applicable. The SDC 1200 Facility does not use surface impoundments.

F-5j: Incompatible Wastes in Surface Impoundments [401 KAR 39:090 Section 1 & 40 CFR 264.230 and 264.17(b)]

Not applicable. The SDC 1200 Facility does not use surface impoundments.

F-5k: Ignitable/Reactive Wastes in Landfills [401 KAR 39:090 Section 1 & 40 CFR 264.304 and 264.17]

Not applicable. The SDC 1200 Facility does not use landfills.

F-5l: Incompatible Wastes in Landfills [401 KAR 39:090 Section 1 & 40 CFR 264.312]

Not applicable. The SDC 1200 Facility does not use landfills.

F-5m: Liquid Wastes in Landfills [401 KAR 39:090 Section 1 & 40 CFR 264.313]

Not applicable. The SDC 1200 Facility does not use landfills.

F-5n: Special Requirements for Containers Disposed in Landfills [401 KAR 39:090 Section 1 & 40 CFR 264.314 and 264.315]

The SDC 1200 Facility does not operate a landfill but, as a generator, plans to use approved commercial landfills for disposal, to include disposal of:

1. Empty containers (i.e., crushed or volume reduced)
2. A limited number of agent-derived wastes composed of solid wastes and having a headspace reading of ≤1 VSL

NOTE: Agent-derived wastes are screened using headspace monitoring prior to shipment offsite for disposal. Results of this monitoring must be ≤1 VSL before the waste can be sent to a landfill for disposal. Part C includes a description of the monitoring methods used.

1. Wastes sent to a landfill for disposal possibly containing “free liquids” must be packed with sorbents to eliminate the possibility of free liquids
2. Closure debris and wastes
3. The SDC 1200 Facility does not dispose of lab packs in landfills and uses alternative forms of treatment/disposal (e.g., incineration).

F-5o: Ignitable or Reactive Wastes in Land Treatment Units [401 KAR 39:090 Section 1 & 40 CFR 264.281 and 264.17(b)]

Not applicable. The SDC 1200 Facility does not operate land treatment units. All hazardous waste is shipped to an appropriately permitted, commercial TSDF for final disposal.

F-5p: Incompatible Wastes in Land Treatment Units [401 KAR 39:090 Section 1 & 40 CFR 264.282]

Not applicable. The SDC 1200 Facility does not operate land treatment units. All hazardous waste disposed offsite is shipped to an appropriately permitted, commercial TSDF for final disposal.

Figure F-1: Inspection Schedule for SDC 1200 Facility

ITEM	FREQUENCY[a]	CRITERIA
EB	M	Exits Are Clearly Identified And Marked
OTS Equipment		
Stack Monitors	D	Perform Agent Challenge Test and Calibrate as Necessary
Induced Draft (ID) Fans	D	Visually Inspect For Loss Of Lubrication, Check For Excessive Vibration, And Loss Of Performance By Use Of Operator Console Data For Operating Parameters
Buffer Tank	W	Visually Inspect For Evidence Of Corrosion, Malfunctions, Leaks, Or Excessive Wear
Exhaust Filter	W	Visually Inspect For Evidence Of Corrosion, Malfunctions, Leaks, Or Excessive Wear
Quench Unit	M	Visually Inspect Shell For Corrosion
Droplet Seperator	M	Visually Inspect Shell For Corrosion

ITEM	FREQUENCY[a]	CRITERIA
Neutral Scrubber	M	Visually Inspect Shell For Corrosion
Wet Electrostatic Precipitator	M	Visually Inspect For Evidence Of Corrosion, Malfunctions, Leaks, Or Excessive Wear
Heat Exchanger	M	Visually Inspect For Evidence Of Corrosion, Malfunctions, Leaks, Or Excessive Wear
Fire Protection System		
Extinguishers (Manual)	M	Check For Condition And Gauge Pressure. Check Expiration Dates
Communication with BGAD Fire Department	Q	Assure The System Functions And A Signal Is Received By BGAD Fire Department
Sprinkler System	S	Inspect In Accordance With Fire Codes And Regulations
Building Ventilation		
Pressure Gauges	D	Check That Gauge Is Reading In Appropriate Range
General Ventilation System	M	Visually Inspect For Evidence Of Corrosion, Malfunctions, Leaks, Or Excessive Wear
Internal Mechanical	When filters are changed	Visually Inspect For Evidence Of Corrosion, And Excessive Wear
EB		
General Housekeeping	M	Inspect For Proper Storage Of Materials, Good Housekeeping, And Condition Of Doors, Vents, And General Maintenance
Lightning Protection	S	Visual Inspect The Condition Of Lightning Protection System
Lightning Protection	B	Check Components Of The Lightning Protection System For Electrical Continuity
Air Monitoring Instruments		
MINICAMS®	D	Visually Inspect Monitors For Physical Integrity
MINICAMS®	D	Perform Agent Challenge Test and Calibrate as Necessary
Monitor Status	D	Verify MINICAMS® Not In Malfunction
Continuous Emission Monitoring (CEMS)	D	Verify Calibration

ITEM	FREQUENCY[a]	CRITERIA
DAAMS (Perimeter Monitoring/Stack Monitoring):		
Tubes	D	Visually Inspect If Present
Sample Line	D	Visually Check If Connected To Sampling Port; Inspect If Heat Trace Is Functional
Uninterruptible Power Supply		
Invertor Input Voltage	M	Check Meter For Proper Voltage
Invertor Input Current	M	Check Meter For Proper Current
Battery Current	M	Check Meter For Proper Reading
Alternating Current Voltage	M	Check Meter For Proper Voltage
Frequency	M	Check Meter For Proper Frequency
Uninterruptable Power Supply Output Current	M	Check Meter For Proper Current
Primary Input Voltage	M	Check Meter For Proper Voltage
Emergency Generator		
Engine / Generator	S	Visually Inspect For Loose Drive Belts, Oil Leaks, Coolant Leaks, Lube Oil Level, and Mechanical Condition
Permitted Storage Area		
ESM	M	Inspect For Good Housekeeping, Condition Of Magazine Doors, Vents, And General Maintenance
ESM	S	Visual Inspect The Condition Of Lightning Protection System
ESM	B	Check Components Of The Lightning Protection System For Electrical Continuity

NOTES:

[a]

D-Daily (once every calendar day)
W-Weekly (once every calendar week)
M-Monthly (once every calendar month)
Q-Quarterly (once every three (3) calendar months)
S-Semiannually (once every six (6) calendar months)
A-Annually (once every 12 months)
B-Biennially (once every 24 months)

Figure F-2: SDC 1200 Facility
Chemical Agent Monitors – MINICAMS®

This document is a RCRA document upon completion

TYPICAL DAILY INSPECTION

Inspector(s) Name(s) _____

Inspector(s) Signature(s) _____

RCRA Inspection Acceptable: _____ **RCRA Inspection Unacceptable:** _____

The following MINICAMS® inspection matrix can have a checkmark and comments at the end of this form; however, those comments do not necessarily make this inspection "U". Please state in the comments section of this form which MINICAMS® item(s) does not meet **RCRA Inspection criteria and is evaluated as "U".**

Item 1: Visually Inspect Monitors for Physical Integrity.

Item 2: Check Diagnostic Indicators on Monitor Housing for Proper Operation.

Item 3: Verify Agent Challenge Test and Calibration Have Been Performed.

Item 4: Sample Line: Visually Inspect if Connected to Sample Port; Inspect if Heat Trace is Functional.

Item 5: Unused Sample Lines: Visually Inspect if Capped.

Item 6: Sampling Pump Exhaust: Inspect for Proper Ventilation.

Item 7: Monitor Status: Verify MINICAMS® not in malfunction.

*No entry is required if there are no discrepancies identified during inspection

MINICAMS® Identification NUMBER	1	2	3	4	5	6	7	8	9
XXX									

MINICAMS® Identification NUMBER	1	2	3	4	5	6	7	8	9
XXX									
XXX									

COMMENTS/DISCREPANCIES

_____

_____

_____

Verified By: _____ **Date:** _____

Discrepancies Noted: (Circle One) **YES** **NO**

Figure F-3: SDC 1200 Facility
Chemical Agent Monitors – DAAMS

TYPICAL DAILY INSPECTION

Inspector(s) Name(s) _____

Inspector(s) Signature(s) _____

This document is a RCRA document upon completion

RCRA Inspection Acceptable: _____ **RCRA Inspection Unacceptable:** _____

The following DAAMS inspection matrix can have a checkmark and comments at the end of this form; however, those comments do not necessarily make this inspection "U". Please state in the comments section if this form which DAAMS item(s) does not meet **RCRA Inspection criteria and is evaluated as "U*".***

Item 1: Visually Inspect Monitors for Physical Integrity.

Item 2: Tubes: Visually Inspect if Present.

Item 3: Sample Line: Visually Check if Connected to Sampling Port; Inspect if Heat Trace is Functional.

Item 4: Unused Sample Lines: Visually check if Lines are capped.

Item 5: Sampling Pump Exhaust: Inspect for Proper Ventilation.

Item 6: Power Supply: Inspect to Ensure Supply Meets or Exceeds Monitoring Plan.

***No entry is required if there are no discrepancies identified during inspection or the station is designated "on request" and has not been requested on this day**

DAAMS Identification NUMBER	1	2	3	4	5	6
XXX						
XXX						
XXX						

COMMENTS/DISCREPANCIES

_____

_____

_____

_____

Verified By: _____ **Date:**_____

Discrepancies Noted: (Circle One) **YES** **NO**

Attachment 2 – Sample Daily Inspection Greater Than 90-Day Tanks and Subpart X (Miscellaneous) Systems

BGCAPP Area(s):				Date:	Time:	Inspector(s):
Hazardous Waste Tanks and Subpart X Systems						
Inspected (√)	Item	Regulatory Citation	Inspection Criteria	Inspection Frequency	Corrective Action Required (Yes/No) (if Yes, describe)	Deficiency (describe) Corrective Action Completed
	Overfill, Spill Prevention, and Waste Feed Cutoff Systems	262.194	Operating in accordance with design specifications and operating procedures.	Daily		
	Aboveground Portions of Tank System	264.193(f)(1) 264.194(c)(1)	Evidence of corrosion, leaks, or spills. Any leaks or spills must be reported immediately to the CCR.	Daily		
	Data from Monitoring Equipment (e.g., temperature, pressure, level gauges)	264.195(b)	Operating in accordance with design specifications and operating procedures.	Daily		
	Data from Leak Detection Equipment or Level Indicating Devices	264.195[1]	Operating in accordance with design specifications and operating procedures, and calibration is current.	Daily		
	Ancillary Equipment (in area immediately surrounding the system, including secondary containment)	264.193(f) 264.194(c)(2)	Evidence or signs of corrosion, releases, leaks, or spills of hazardous waste. Any leaks or spills must be reported immediately to the CCR.	Daily		
	Ancillary Equipment Not in Secondary Containment	264.195	Evidence or signs of corrosion, releases, leaks, or spills of hazardous waste. Any leaks or spills must be reported immediately to the CCR.	Daily		
	Piping, Pumps, Flanges, and Connectors	Contingency Plan	Check for potential leaks.[1]	Daily		
	Loading, Unloading, Transfer, and Sample Connection Systems	Contingency Plan	Capped, plugged, or blind-flanged when not in use.	Daily		
	Incompatible Ignitable/ Reactive	264.17 264.198 264.199	Incompatible waste separated from ignition sources. No ignitable or reactive waste stored in tank. No ignitable or incompatible wastes stored in the same tank system.	Daily		
	Air Emission Air Pollutant Emissions (tanks)	264.200 264.1084	Tank is not heated to a temperature greater than design temperature. Tank is open only for routine inspection, maintenance, or other normal operations.	Daily		

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Part G: Contingency Plan and Emergency Procedures [401 KAR 39:060, Section 5, 39:090, Sections 1, & 40 CFR 124, 264, and 270]

Because BGCAPP is a tenant facility of BGAD, this Contingency Plan was prepared for the SDC 1200 Facility. BGCAPP monitors and provides for spill prevention, controls, countermeasures, and management of hazardous wastes, and unplanned discharges as outlined in Attachment F, Procedure to Prevent Hazards.

The SDC 1200 control room, in accordance with 401 KAR 39:090 and 40 CFR 264.53(a), maintains a copy of this facility Contingency Plan. This plan minimizes hazards to human health and the environment due to fires, explosions, and unplanned sudden or non-sudden releases of hazardous wastes or hazardous waste constituents to air, soil, surface water, or groundwater. The facility Contingency Plan (hereafter referred to as “Contingency Plan”) serves as the primary document outlining contingency actions, but the SDC 1200 Facility will rely on other resources and personnel from BGAD, and/or BGCAPP Main Plant based on the nature of the emergency or contingency.

This Contingency Plan describes the response by SDC 1200 Facility personnel to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, surface water, or groundwater at the facility in accordance with the requirements of 401 KAR 39.090, 401 KAR 39:060, Section 5; and 40 CFR 264 Subpart D. Since the facility is located on a U.S. Army installation, Army environmental regulations apply, and this document complies with these requirements as well.

G-1: General Information [401 KAR 39:090 Section 1 & 40 CFR 264]

BGAD is located in the Blue Grass region of east central Kentucky in the approximate center of Madison County. BGAD encompasses 14,596 acres and is approximately 30 miles southeast of Lexington, 85 miles southeast of Louisville, and 90 miles south of Cincinnati, Ohio. It is adjacent to the southeastern portion of Richmond, Kentucky, and approximately 5 miles southeast of the center of Richmond and 10 miles northeast of Berea, Kentucky. Agricultural land, industrial land uses, low-density residential areas, some commercial activities, and public areas surround BGAD and include some recreational activities and areas.

BGAD, a U.S. Army installation, is a Tier 1 Joint Munitions and Lethality Life Cycle Management Command (JM&LLCMC) depot with a primary function of providing munitions, chemical defense equipment, and special operations support to the DOD. The BGAD mission includes storage of conventional munitions for training and major force deployment and serving as the Army's major storage site for chemical defense equipment. The conventional munitions operations at BGAD include shipping and receiving, storage, maintenance, inspection, and demilitarization. The JM&LLCMC is a U.S. Army organization that is subordinate to the Army Materiel Command (AMC). The Program Executive Office, Assembled Chemical Weapons Alternatives (PEO ACWA) is administratively assigned to the U.S. Army Acquisition Support Center but reports directly to the DOD. PEO ACWA has responsibility for destruction of the chemical stockpile remaining at BGAD.

The SDC 1200 Facility is a tenant of BGAD and is located adjacent to the ACWA storage area and wholly within BGAD's boundary. A map of BGAD found in Volume II shows the location of the SDC 1200 Facility, BGCAPP Main Plant and the surrounding area. The BPBG Team contracted to design, construct, systemize, operate, and close the SDC 1200 Facility. The purpose of the facility is to destroy munitions containing chemical nerves agents GB and VX. Facility personnel will transport munitions to the SDC 1200 storage magazine from permitted HWSUs, directly from the BGCAPP Main Plant during daylight hours. However, movement of munitions and munition components from the SDC 1200 storage magazine to the SDC 1200 Facility for processing will potentially occur during nighttime hours.

Movement of these chemical containers will be conducted without a work plan or notification of movement as authorized under existing environmental regulations and statutes for a permitted facility treating chemical munitions (i.e., demilitarization facility). Movement will be performed using an Standing Operating Procedure (SOP) to eliminate potential security concerns associated with announcements of routine chemical munitions movements which include date and/or time [KRS 224.50-130(5)]. The information in this plan, as well as the Quick Reference guide required by 40 CFR 262.262(b), will be consistent with 40 CFR 260.2 and 40 CFR 2.203 confidential information exceptions and national security requirements (e.g. Army Regulation [AR] 530-1) which prohibit the release of operations security (OPSEC) information to the public.

The hazardous waste treatment and the transportation routes for incoming chemical agent munitions, incoming hazardous materials, and outgoing hazardous wastes can be found in Volume II.

G-2: Emergency Coordinators (ECs) [401 KAR 39:090 Section 1 & 40 CFR 264]

BGAD has overall jurisdiction of the BGCAPP and the SDC 1200 footprints. The Emergency Coordinator (EC) for BGCAPP is the SDC 1200 Plant Manager (PM) or designee. All information is coordinated through the SDC 1200 Control Room (E-CON) to the main plant control room (CON). The CON has a dedicated phone directly to the EOC or designated Manager on duty. For the purposes of this document, references to the EOC may also refer to the manager on duty when the EOC is not formally available. The BGAD Commander serves as the Initial Response Force Commander (IRFC). During any event, information is provided to the BGAD Commander on the nature and extent of the event. The EC, in coordination with the CON and EOC provide all information required for external notifications and make requests for any additional resources needed for the type of response action. Mutual aid agreements (MAAs) provide for specialized external assistance from outside entities (e.g. medical, fire), should the need arise, and are requested by the BGAD Commander. The EC is available during daily operations on-site and can be reached by radio and PA, during off shift hours the EC can be reached by phone. The SDC 1200 Plant Managers contact information will be provided by title and phone number only for the sake of privacy and SDC 1200 Facility employee security due to the sensitive nature of the operations.

BGAD follows the National Incident Management System (NIMS) Incident Command System (ICS) protocols for response actions and BGCAPP falls within the BGAD ICS. As such, the command and signal BGCAPP Emergency Response Organization (ERO) has been delegated to the Plant Manager. BGCAPP has an internal outlined ICS. The SDC 1200 Facility has trained and equipped facility personnel to assist the emergency response team (ERT) assigned to each of the operating shifts. If a fire, explosion, spill, or release occurs at the SDC 1200 Facility, SDC 1200 provides the initial response. The Shift Plant Manager (SPM), or alternate, on duty at the time of the emergency becomes the SDC 1200 Facility On Scene Incident Commander (OSIC). The responsibilities of the ICS include:

1. Coordinating overall incident responses
2. Assessing the immediate threat to human health or the environment within and beyond the boundaries of the installation
3. Determining whether the emergency involves a spill of a reportable quantity (RQ) of waste
4. Determining when to notify offsite agencies
5. Ensuring proper cleanup equipment and procedures are available
6. Providing assistance, personnel, and equipment for response to emergency situations and commits resources as needed based upon the situation
7. If needed, requesting the initiation of MAAs through BGAD for additional specialized resources.

G-3: Implementation [401 KAR 39:090 Section 1 & 40 CFR 264]

The SDC 1200 Facility OSIC implements the Contingency Plan when a fire, explosion, or release of hazardous waste or hazardous material could threaten human health or the environment.

The implementation of the Contingency Plan occurs in the following specific situations at the discretion of the SDC 1200 Facility OSIC:

- An unplanned explosion occurs at or near the SDC 1200 Facility
- A fire threatens the SDC 1200 Facility or the route to the facility
- Use of water or chemical fire suppressant on a fire could result in contaminated runoff
- An imminent danger exists that an explosion could result in a release of hazardous constituents
- A spill of hazardous material or wastes results in a fire, explosion, or potential fire or explosion
- A spill of hazardous material or wastes is contained onsite, but potentially will contaminate soils, groundwater, or surface water resources

The BPBG Team provides copies and revisions of the Contingency Plan to organizations that will potentially support or be involved in an emergency response at the SDC 1200 Facility. The BPBG Team ensures distribution of the Contingency Plan copies to the following areas (as a minimum):

- BGAD, Commander, Fire Department, Environmental Office, Directors, Chiefs, and Tenant Organizations
- Local Emergency Planning Committee (LEPC) of Madison County, to include local authorities and hospitals
- Kentucky Emergency Response Commission
- Kentucky Department for Environmental Protection, Division of Waste Management
- EPA Region IV (if requested)

G-4: Emergency Response Procedures [401 KAR 39:090 Section 1 & 40 CFR 264]

G-4a: Attachment F – Procedures to Prevent Hazards

Provide guidance for avoiding a spill or unplanned release of hazardous materials. This Contingency Plan provides for those incidents not prevented by Attachment F and includes emergency notification requirements, support organizations, and emergency response procedures. SDC 1200 Facility personnel are properly trained and will provide emergency response for hazardous material spills and non-agent releases at the SDC 1200 Facility.

G-4b: Identification of Hazardous Materials [401 KAR 39:090 Section 1 & 40 CFR 264]

All materials and wastes at the SDC 1200 Facility are clearly marked and identified. The SDC 1200 Facility OSIC, in consultation of environmental compliance, can identify and quantify the hazardous waste released by any of the following methods, as appropriate:

- Consulting shift personnel involved in or in the vicinity of the event
- Personal visual observations
- Reviewing operating records for storage or treatment activities

The OSIC for the SDC 1200 Facility relies on the initial reports of personnel observing the emergency to provide information about the extent of the release. The OSIC uses the information gathered to provide an initial briefing and subsequent updates to the ERT Leader for the CON to provide to the EOC. The ERT assembles and conducts reconnaissance to report additional information from the scene of the emergency. The OSIC uses this new information to further characterize the material(s) released, the source, and to quantify the amount and areal extent of any environmental release.

G-4c: Hazard Assessment [401 KAR 39:090 Section 1 & 40 CFR 264]

The SDC 1200 Facility OSIC assesses possible hazards, direct and indirect, to human health and the environment. This assessment may include the following:

The potential for an unplanned explosion in the SDC 1200 Facility is remote. However, this hazard is considered a possible contingency due to the presence of explosives. The presence of explosives and VX agent can increase the intensity and potential hazards from a fire.

The possible hazards associated with fires (i.e., unless chemical agents are involved) include the initiation of explosions, burns, smoke inhalation, and ignition of adjacent buildings.

Prior to the initiation of agent operations and during routine operations, the EOC calculates the Maximum Credible Event (MCE) for the SDC 1200 Facility. BGAD, and the BPBG Team use this information to make evacuation decisions concerning SDC 1200 Facility personnel, BGCAPP Main Plant personnel and BGAD personnel, and areas outside the BGAD boundaries. This modeling information also serves as a basis for decisions concerning notifications to local, state, and/or federal agencies.

G-4d: Control Procedures [401 KAR 39:090 Section 1 & 40 CFR 264]

G-4d(1): Facility OSIC

The general duties of the SDC 1200 Facility OSIC, or alternate, during an emergency at the SDC 1200 Facility are:

- Use SDC 1200 Facility alarms and communication systems to notify and safely direct remaining SDC 1200 Facility personnel.
- Notify the Plant Manager, or designee, for the SDC 1200 Facility for events covered by this Contingency Plan that could threaten human health or the environment beyond the SDC 1200 Facility. Follow-up to ensure the EOC has received all information gathered through the E-CON and CON.
- Identify the character, source, amount, and extent of materials released from stacks, spills, fires, or explosion.
- Assess possible hazards, both direct and indirect, to human health or the environment.
- Take all reasonable measures necessary to ensure fires and releases do not occur, recur, or spread to other areas of the SDC 1200 Facility.
- Monitor equipment for leaks, pressure buildup, ruptures, etc.
- Instructs control personnel to stop SDC 1200 Facility operations in response to an emergency.
- Provide for treating, storing, or disposing of recovered waste and contaminated material after an emergency.
- Ensure wastes potentially incompatible with the released material are not treated, stored, or disposed until cleanup procedures are complete within the area(s) affected by the event.
- Ensure emergency equipment used during the emergency is replaced or cleaned and ready for use before operations resume in the area(s) of the SDC 1200 Facility affected by an event.
- Ensure the notification to the Plant Manager has been made. All external notifications are made by the EOC and BGAD personnel.
- SDC 1200 Shift Personnel Supporting the OSIC

SDC 1200 Facility shift personnel with the additional duty of supporting the SDC 1200 Facility OSIC during emergencies include the following:

- SDC 1200 SCO: The SCO receives direction from, and reports to, the SDC 1200 Facility OSIC. Immediately upon initiation of the Contingency Plan, the OSIC designates an Area Supervisor to be the SCO. The SCO then reports to the scene of the event and establishes an on-scene command post, assumes control of the activities of the first responders, and coordinates the actions of the ERT. The SCO continually updates the SDC 1200 Facility OSIC and E-CON of the status of the emergency.

- E-CON: The E-CON shuts down SDC System operations and takes other actions as directed by the SDC 1200 Facility OSIC. SDC 1200 E-CON is the central point of contact for reporting, coordinating, and controlling all SDC 1200 contingencies and operate under the authority of the OSIC. They deliver prompt notification to the main plant CON, which then notifies the EOC. The SDC 1200 CON manages the logistics and resources required for an appropriate response to the emergency. SDC 1200 E-CONs report to and advise the OSIC and serve as an interface between the OSIC and the SCO.
- ERT Leader: The ERT Leader receives direction from, and reports to, the SCO. Each shift has an individual assigned as an ERT Leader. The ERT Leader directs the activities of the ERT. The ERT Leader and the SCO can be the same person.
- ERT: Each shift has trained personnel assigned as ERT members. The ERT is comprised of personnel trained and equipped to respond to accidents, emergencies and incidents involving hazardous material or hazardous waste at the SDC 1200 Facility. The ERT, in line with the ICS, is organized to allow the appropriate level of response to a contingency. ERT members receive direction from the ERT Leader. The ERT mitigates uncontrolled chemical agent and hazardous material or waste releases by assisting with the identification, stopping the release, assessing the extent of contamination, and performing the appropriate collection and containerization of wastes for disposal.
- SDC 1200 Safety Officer: The SDC 1200 shift safety representative becomes the Safety Officer after implementation of the Contingency Plan. The Safety Officer reports to the SCO to provide safety assessments and advice (e.g., required PPE and response equipment). The Safety Officer has the authority to alter, suspend, or terminate any activities immediately dangerous to life and health or that involve an immediate danger to personnel.
- SDC 1200 Environmental Compliance Specialist: The SDC 1200 Environmental Compliance Specialist reports to the SCO to assist with the determination of types and quantities of wastes or materials requiring the need for external notifications to be performed by the EOC or BGAD Environmental. They assess environmental impacts and provide technical advice in the areas of spill cleanup, property decontamination, packaging waste materials, and waste disposal.

G-4e: Emergency Situations

The following paragraphs describe the emergencies that potentially will affect the SDC 1200 Facility and provide general response information for each.

Explosion: The handling areas for agent filled items in the EEB have fire suppression sprinkler systems installed to suppress fires associated with these operations and decrease the risk of unplanned explosions. If an unplanned explosion occurs at the SDC 1200 Facility or on BGAD, the SDC 1200 Facility EC decides, in coordination with the EOC, whether the nature, location, and size of the explosion warrant an evacuation or shelter-in-place. If the Contingency Plan is activated, then SDC 1200 Facility and treatment systems are brought to a “safe” mode as quickly as possible and work ceases, to await instructions for evacuation or shelter in-place. Chemical surety material will be secured to the maximum extent possible.

If the explosive hazard exists inside the facility, or nearby, all SDC 1200 Facility personnel immediately evacuate or shelter-in-place and all efforts focus on injured personnel and the prevention of further damage or possible injury to SDC 1200 Facility personnel.

Fire: The design of the SDC 1200 Facility provides fire protection through automatic sprinklers, hydrants and a fire alarm notification system. SDC 1200 Facility has fire hydrants located on two sides of the EEB and nearby in the BGCAPP Main Plant area to support firefighting. Trained SDC 1200 Facility personnel are trained to use fire extinguishers for incipient stage fires that hand held fire extinguishers are designed to extinguish. The E-CON notifies the CON which subsequently reports any fire on the SDC 1200 Facility to the EOC. If a fire, other than an incipient fire, occurs within the SDC System processing areas the SDC 1200 Facility OSIC orders the treatment systems be placed into a “safe” mode and the evacuation or the shelter in-place of personnel in accordance with the daily plan. If the fire is incipient and easily extinguished or occurs elsewhere (e.g., on BGCAPP Main Plant or BGAD), the OSIC makes the decision whether the nature, location, and size of the fire warrants the evacuation and/or placing waste processing systems in “safe” mode. Additional fire response capabilities are available, on request through the EOC, from the BGAD Fire Department.

Spills and Releases: In the event of a spill or release, routine work in the area ceases and evacuation and treatment of injured personnel begins; then the E-CON notifies the BGCAPP Main Plant CON, which then reports the currently available information to the EOC.

The SDC 1200 Facility OSIC will direct the ERT to respond to appropriate location of the event.

Automatic Notification: Following the initiation of a fire alarm the EOC is notified by the CON via red phone. The EOC is in a secure location and provides emergency event notification to surrounding counties, as well as state and local emergency response organizations as necessary.

Personnel providing notification from the SDC 1200 Facility will be in the E-CON. The E-CON is in a secure location within the CLA [redacted]. The E-CON personnel remain in-place and will be required to mask if the emergency involves a chemical agent event. Additional protective measures are not warranted due to the low level risk associated with an agent release, and the ability of E-CON personnel to mask and continue their duties.

Following the completion of the emergency response activities, the ERT ensures spill and cleanup wastes are collected and containerized for treatment and/or disposal in accordance with regulatory requirements and permit conditions. Larger spills of industrial chemicals may require assistance from BGAD to mitigate and control the release prior to cleanup by the ERT. If this situation occurs, BGAD assistance will be requested through the EOC.

G-4f: Storage and Treatment of Released Material [401 KAR 39:090 Section 1 & 40 CFR 264]

Immediately following the incident, Waste Management arranges for storage, potential treatment, or disposal of all media generated and containerized during the emergency and recovery activities. Permitted or <90-day storage areas may be used to store wastes from emergency response activities prior to offsite shipment and disposal. Disposal of media collected from an emergency response will be disposed IAW regulatory requirements and permit conditions

G-4g: Incompatible Waste [401 KAR 39:090 Section 1 & 40 CFR 264]

If the incident-affected area contains wastes stored prior to the event, SDC 1200 Facility personnel ensure the stored wastes are compatible with the wastes generated from the emergency or remove the previously stored wastes. The SDC 1200 Facility uses only new or thoroughly cleaned, “used” portable tanks/containers to contain emergency media recovered during the emergency response. Environmental Department personnel ensure:

- Adequate characterization of wastes from the cleanup prior to storing with other wastes
- Wastes are not co-mingled with other SDC 1200 wastes
- Wastes are compatible with waste containers or tanks used for storage
- If the wastes from the cleanup must be stored near or in the same general area as other SDC 1200 wastes, the following precautions apply:
- Store liquids in either drums, tanks, or other containers in portable containments or on containment pallets
- Do not store acidic wastes in unlined metal containers or tanks
- Separate cleanup wastes from other stored wastes by a berm, dike, wall, containment pallet or other physical barrier so that wastes cannot co-mingle

G-4h: Post-Emergency Equipment Maintenance [401 KAR 39:090 Section 1 & 40 CFR 264]

During the decontamination process, personnel remove PPE used in the emergency response, and place the used PPE into plastic bags. ERT personnel provide information concerning the nature of the emergency response and the involved hazardous materials/waste so that Waste Management can characterize the waste for proper storage, treatment and disposal method(s).

SDC 1200 Facility personnel and other responders decontaminate non-disposable equipment, such as spark-proof tools, and vehicles, at a site on the SDC 1200 Facility established by the SDC 1200 OSIC. The selected decontamination site must minimize the exposure of uncontaminated employees, equipment, and the environment. The decontamination process consists of at least one wash and rinse and considers the extent of contamination and the type of equipment requiring decontamination. The wash/rinse waters are contained within a temporary/portable or permanent wash basin(s) of appropriate materials of construction and containment volume to prevent migration into the environment. Waste Management uses generator knowledge or collects samples of wash and rinse water and decontamination materials from the decontamination process for appropriate characterization, storage, treatment and disposal method(s).

Prior to resuming operations, the EC or OSIC, with the assistance of the appropriate consulting expertise (e.g. Safety, Environmental, ERT), from BGCAPP and/or BGAD, will conduct an inspection of all safety and emergency response equipment. The EC or OSIC ensures SDC 1200 Facility personnel restock, clean, inspect, and prepare for subsequent use, all safety, decon, tools, spill equipment and PPE used in the emergency prior to restarting operations or resuming use of the affected areas.

G-4i: Container Spills and Leakage [401 KAR 39:090 Section 1 & 40 CFR 264]

If a release of material or hazardous waste results from a leaking container, the remaining contents of the container are either transferred to a new container, that is in good condition, or placed into another over sized container (i.e., over-packed). The trained SDC 1200 responder cleans up the spills media after establishing control of the container leak; securing the initial container is the first priority. All waste containers are stored within secondary containment, providing an additional protective measure to contain spills or leaks.

G-4j: Tank Spills and Leakage [401 KAR 39:090 Section 1 & 40 CFR 264]

Not Applicable. The SDC 1200 Facility is not permitting tanks or tank systems to store or treat hazardous wastes.

G-4k: Provisions for Waste Pile Soils and Leakage [401 KAR 39:090 Section 1 and 4 & 40 CFR 264 Subpart L]

Not applicable. This provision does not apply to the SDC 1200 Facility; waste piles are not used at this facility.

G-4l: Provisions for Surface Impoundments, Spills, Leakage and Sudden Fluid Level Drops [401 KAR 39:090 Section 1 & 40 CFR 264 Subpart K]

Not applicable. This provision does not apply to the SDC 1200 Facility; surface impoundments are not used at this facility.

G-4m: Provisions for Landfill Leakage [401 KAR 39:090 Section 1 & 40 CFR 264 Subpart N]

Not applicable. This provision does not apply to the SDC 1200 Facility; landfills are not used at this facility.

G-4n: Requirements for Hazardous Wastes F020, F021, F022, F023, F026, and F027 [401 KAR 39:090 Section 1 & 40 CFR 264 Subpart N]

Not applicable. This provision does not apply to the SDC 1200 Facility, as it does not place, treat, or generate these cited F wastes in onsite tank systems.

G-5: Emergency Equipment [401 KAR 39:090 Section 1 & 40 CFR 264]

The SDC 1200 Facility personnel manage hazardous waste management areas (e.g., permitted container storage in the ESM, <90 Day Container Storage Areas and Satellite Accumulation Areas) as well as the spill response kits for project equipment and hazardous material storage areas. Spill response kits contain appropriate materials to respond to the nature of the spill for the area in which the kit is located and are inspected quarterly.

Fire extinguishers are located throughout the site and inside the SDC 1200 Facility and vehicles.

The SDC 1200 Facility employs radio, telephone, and verbal/public address signals to advise employees outside buildings of an incident or potential fire, explosion, or release.

At the SDC 1200 Facility, decontamination equipment is pre-staged for rapid response to areas where explosions, fires, or releases have the potential to occur. SDC 1200 Facility personnel select emergency response equipment and decontamination materials based on the type and quantity of the hazardous waste or material involved in the emergency response. Additional emergency response equipment, decontamination equipment/materials, and showers are available through the EOC if required. Table G-1 lists emergency response equipment and materials available in the event of an emergency at the SDC 1200 Facility.

Table G-1: SDC 1200 Facility, Non-Chemical Agent Response Emergency Equipment

Emergency Equipment	
Description	**Location**
Fire Engine/HAZMAT Response	BGAD Fire Department
Fire Extinguishers	Throughout SDC 1200 Facility and Within Vehicles
Fire Hydrants	Within SDC 1200 Facility and Nearby in BGCAPP Main Plant Area
Absorbent Sheets/Bags/Pads	Pre-staged at Designated Locations
Containment Booms	Pre-staged at Designated Locations
Granular Absorbent	Pre-staged at Designated Locations
Ambulance	BGCAPP Main Plant Medical Clinic or BGAD Health Clinic
PPE	02SF, SDC 1200 Support Building, and EEB
Containment Berms	Available on the BGCAPP site
Spill Kits	Pre-staged at Designated Locations
Emergency Medical Equipment	BGCAPP Main Plant Medical Clinic
Emergency Response Vehicle(s) and Trailer[1]	Main Plant ERT and BGAD Emergency Response Teams

NOTES:

[1] Emergency response vehicle(s) and trailer contain spill response materials for industrial and chemical agent spills/releases and emergency/rescue equipment including entry suits and self-contained breathing apparatus (SCBA).

G-6: Coordination Agreements [401 KAR 39:090 Section 1 & 40 CFR 264]

The SDC 1200 Facility, as a tenant activity of BGAD, does not enter into coordination agreements with organizations outside of BGAD. The SDC 1200 Facility receives additional emergency support from BGAD, a fixed military installation with onsite capabilities for any potential emergency. These capabilities include the BGAD Provost Marshal and security force, the BGAD Fire Department (which also conducts emergency spill response), and the BGAD Health Clinic. Ambulance service is available for personnel transport to local hospitals. The Contingency Plan has been coordinated with each onsite agency with emergency response duties.

BGAD maintains and updates Mutual Aid Agreements (MAAs) with the following offsite emergency support activities.

a. Baptist Health Richmond Hospital, Richmond, KY
b. Berea Police Department, Berea, KY
c. St. Joseph Berea Hospital, Berea, KY
d. Clark County Regional Medical Center, Winchester, KY
e. Kentucky State Police Post 7, Richmond, KY
f. Madison County Emergency Medical Services, Richmond, KY
g. Madison County Fire Department, Richmond, KY
h. Madison County Sheriff's Department, Richmond, KY
i. Madison County, Kentucky; Meteorological Data and Meteorological Services
j. Madison County, Kentucky; Mutual Support Agreement, Madison County, KY
k. Richmond Fire Department, Richmond, KY
l. Richmond Police Department, Richmond, KY

G-7: Evacuation Plan [401 KAR 39:090 Section 1 & 40 CFR 264]

BGCAPP, in conjunction with the EOC, identifies primary and alternate evacuation routes from the SDC 1200 site to pre selected assembly (rally) points. BGAD identifies the specific routes and assembly (rally) points at the beginning of the workday. The evacuation route may be changed during the workday based on activities and weather conditions. The evacuation routes for BGCAPP are shown on Figure G-2.

Building evacuation routes are posted in the SDC 1200 Facility, Assembly points are posted outside of SDC 1200. The need to evacuate, the selected evacuation route, and the designated assembly point will be communicated by siren/warning system, radio, voice, and/or public address.

The OSIC directs evacuation from the SDC 1200 site based on information obtained from reports of a fire, explosion, or unplanned release of a hazardous material or wastes as directed from the EOC. The SDC 1200 Facility OSIC may order a partial or full evacuation of the SDC 1200 Facility to the designated assembly point as coordinated with the EOC.

The EOC directs evacuation from BGAD based on information provided by the EOC. BGAD Regulation 385 4, Evacuation and Accountability, describes the notification and process for accomplishing a partial or total evacuation of BGAD.

If a fire, unplanned explosion, or release requires the evacuation of an area or the entire site, the OSIC or the E-CON (if designated to do so by the OSIC) immediately notifies facility personnel, visitors to the plant, and the EOC. The EOC notifies the appropriate local authorities, in accordance with existing procedures. The BGAD Environmental Office or EOC, dependent on the event, is responsible for notifying all outside agencies as required by U.S. Army, Federal, State Regulations and Permit conditions.

G-8: Required Reports [401 KAR 39:090 Section 1 & 40 CFR 264.5]

Facility personnel prepare a written follow-up report in addition to the verbal notifications initiated by the EOC or BGAD Environmental. All emergencies that require the implementation of the Contingency Plan, or that involve the release of any substance equal to or exceeding an RQ, requires a written report within 15 days to KDEP, Division of Waste Management. The Incident Report is generally sent to:

Energy and Environment Cabinet
Director, Division of Waste Management
Department for Environmental Protection
300 Sower Boulevard, 2nd Floor
Frankfort, KY 40601

Facility personnel place a record of all emergencies requiring implementation of the Contingency Plan in the facility Operating Record.

Appendix G-1: General Emergency Response Procedural Guide

a. Procedures for Initially Controlling a Release of Hazardous Waste or Hazardous Waste Constituents

Emergency response begins with the notification of control room personnel of an emergency condition involving a release of hazardous waste or hazardous waste constituents into a secondary containment, the environment, or outside of engineering controls. The notification initiates the following emergency response activities:

(1) The SDC 1200 CRO notifies the BGCAPP Main Plant CON who then notifies the EOC that an emergency exists. The SDC 1200 Facility Shift Plant Manager provides EOC with additional available information on the situation, and assumes responsibilities as the SDC 1200 Facility IC.

(2) After making this notification, the SDC 1200 Facility IC directs the SDC 1200 Facility OSC and the SDC 1200 Facility HMRT Leader to gather information, and plan the emergency response to mitigate the source, and contain, cleanup, store, and dispose of released material and cleanup/decontamination residues.

(3) SDC 1200 Facility HMRT personnel, wearing appropriate PPE (the Safety Officer provides assistance in PPE selection) for the waste or waste constituents released, mobilize to the emergency response location and respond to the release of hazardous waste or hazardous waste constituents.

The first priority in the emergency response (i.e., assuming that no injured personnel or personnel otherwise unable to clear the area remain behind) is to stop the release.

If the emergency involves a leaking container, the leak will be stopped by transferring the waste into a new container that is in good condition and compatible with the material being transferred. If transfer is not immediately possible, the leak or spill is to be contained until waste can be placed into the appropriate container(s)/tank(s). Containment in the ESM is adequate to ensure liquid agent/hazardous waste does not reach the environment. In addition, the ESM is maintained at a negative pressure relative to the outside which will prevent vapor migration outside of the magazine. In addition, the ESM will be equipped with a permanent IONEX Model CD1000 filter system. The filter system is designed to handle up to 1000 cfm air flow and consists of a pre-filter, a HEPA filter, a charcoal filter and a test section (referred to as the ‘mid-bed’). From this point, the filter train continues with a second charcoal filter followed by another HEPA filter. The exhaust filtration unit is connected to the ESM in such a fashion as to provide negative pressure within the facility with respect to the air outside the facility. MINICAMS and DAAMS monitoring locations points are located within the ESM, at the filter mid-bed and at the IONEX Model CD1000 filter stack. The combination of the air monitoring and portable filter unit with carbon filter IONEX Model CD1000 filter unit will be used to provide engineering controls to prevent agent releases from the magazine into the environment. Monitoring at 1.0 VSL (within 95% confidence) at the ESM stack will be used for compliance criteria.

If a release from a container occurs outside of secondary containment, unprotected personnel are to be evacuated to an upwind location. Personnel wearing the appropriate PPE contain the spill and prevent further leakage at the source of the spill. Spilled process waste solutions are to be transferred to another tank, a portable tank, or into containers. Other liquid wastes, solid wastes, or contaminated media are to be transferred into containers or portable tanks. The containerized waste materials are stored temporarily prior to disposal.

If the emergency involves a fire or unplanned explosion, the initial response consists of removing any injured personnel. For significant fires or unplanned explosions, the SDC 1200 Facility HMRT Leader establishes a safe “stand-off” distance and monitors the situation while awaiting additional support from the BGAD Fire Department. No HMRT personnel are placed at risk.

If the emergency involves an air release of contaminants, the SDC 1200 OTS HVAC system mitigates the release and the SDC 1200 Facility personnel providing monitoring support perform monitoring of the release using in-place air monitoring systems (i.e., MINICAMS® and the Depot Area Air Monitoring System – DAAMS).

In the event that wastes mix with water (e.g., firefighting water), the SDC 1200 Facility responders use sorbent materials and/or containment equipment and devices to control the contamination. SDC 1200 HMRT personnel place sorbent materials directly on the waste to prevent further spread and to aid in recovery and/or construct berms of earthen or sorbent materials downstream of the spill or release to contain larger waterborne spills.

b. Follow-on Actions for a Liquid Release:

After initial emergency response, follow-on actions include, but are not limited to:

(1) Use a portable pump or the installed sump pump to remove as much of the spilled/leaked waste as possible. Use squeegees, absorbents, and/or a wet-dry vacuum (with HEPA filter) to remove the remaining spilled/leaked waste, and any wastes in secondary containments, within 24 hours of detecting the leak.

(2) Collect the released chemical, spent decontamination solution, and any contaminated water for storage prior to disposal. Place any contaminated sorbents, earthen materials, or other containment devices in DOT-approved containers, and store prior to characterization and disposal. Do not leave potentially contaminated materials at the spill site.

(3) Observe and/or monitor the emergency response area for the presence of contaminants.

(4) Decontaminate the release area (with appropriate decontamination solutions and/or water) until the level of remaining contamination is determined to be acceptable based on criteria established in conjunction with KDEP.

(5) If contamination remains, repeat the decontamination procedure until cleanup is satisfactory.

The SDC 1200 Facility IC notifies the SDC 1200 environmental compliance personnel if hazardous waste removal within 24 hours of detection is not possible for paragraph (1) above. If the SDC 1200 Facility IC determines the release affects or has the potential to affect the environment beyond the SDC 1200 Facility boundary, he/she notifies the EOC.

c. Procedures for Control of Incidental Releases

An incidental release is a release of hazardous materials, hazardous waste or hazardous waste constituents, where the substance can be absorbed, can be neutralized, or can otherwise be controlled by SDC 1200 Facility personnel in the immediate release area, at the time of the release.

In the event of an incidental release of hazardous waste or hazardous constituents at the SDC 1200 Facility:

(1) The IC directs the SDC 1200 HMRT to mitigate the source, and to contain, cleanup, and temporarily store the wastes.

(2) As soon as practicable, the SDC 1200 Facility IC notifies the EC of the incidental release and the actions taken to mitigate the release.

(3) SDC 1200 HMRT personnel place spilled liquid, solid waste, and contaminated residuals into containers and temporarily store the wastes prior to disposal.

(4) SDC 1200HMRT personnel place contaminated sorbents, earthen materials, or other containment devices in DOT-approved containers, and store the wastes prior to disposal or treatment. SDC 1200 Facility personnel remove other contaminated materials from the spill site and decontaminate the materials for reuse or dispose as wastes.

Part H: Personnel Training [401 KAR 39:090 Section 1 and 40 CFR 264]

The Training Program provides facility personnel with the necessary knowledge and skills to perform hazardous waste duties safely, efficiently, and in an environmentally sound manner. The purpose of this training program is to prepare personnel for treatment operations, with emphasis on reducing potential risks to human health or the environment. This is accomplished by ensuring personnel handling hazardous waste can properly perform their assigned duties and responsibilities. In addition to providing training in the mechanics of the job functions, this training program provides personnel with a thorough understanding of the treatment operations, including the safety and emergency response operations. Refresher training will be conducted as required by environmental regulations or to update workers on new methods or equipment.

This training program meets the RCRA regulatory requirements by:

1. Providing specific training for various hazardous waste management positions
2. Ensuring all personnel involved in ammunition operations and planning complete the training program prior to being assigned to duties involving ammunitions or explosives
3. Providing training that ensures personnel are able to respond effectively to emergencies
4. Ensuring the BPBG Team's Training Program is directed by qualified persons trained in hazardous waste management practices
5. Maintaining required documentation for the facility
6. Maintaining training records for personnel for at least three years from the date last worked

H-1: Outline of Training Program [401 KAR 39:090 Section 1 and 40 CFR 264]

The Training Program has been designed to ensure personnel will be able to perform their specific job assignments. The training program consists of both onsite training and additional courses that apply to specific job functions. This Training Plan is organized as follows:

1. Section H-1a: provides information on the job titles and job descriptions for SDC 1200 Facility personnel involved in hazardous waste operations and the maintenance of these documents by the facility and BPBG Training Department
2. Section H-1b: describes the training content, frequency, and techniques
3. Section H-1c: describes the responsibilities of the appropriate manager, who coordinates and manages the training of facility personnel
4. Section H-1d: describes the relevance of the training to the job positions
5. Section H-1e: describes training for emergency response
6. Section H-2: describes the implementation of the training program

H-1a: Job Titles and Duties [401 KAR 39:090 Section 1 and 40 CFR 264]

Complete job descriptions, including title, office, person reporting to, duties, and minimum qualifications/training for each position related to hazardous waste management shall be maintained. Job titles and duties will be consistent with the current duties and responsibilities for safely treating explosive components in accordance with applicable OSHA, RCRA, and military requirements.

In general, all personnel working at the SDC 1200 Facility will:

1. Demonstrate the ability to understand and apply both oral and written instructions at a level appropriate to the assigned job.
2. Possess the aptitude and attitude necessary to ensure compliance with environmental, safety, and job requirements.
3. Be physically capable of doing the work.

H-1b: Training Content, Frequency and Techniques [401 KAR 39:090 Section 1 and 40 CFR 264]

The Training Program provides both initial and continuing training of all supervisors, operators, and personnel involved in the waste management unit operations. The principal objectives of the training program are to train personnel to safely operate, maintain, and monitor facility operation without adversely impacting the environment. The training program includes job orientation, safety procedures, and basic work principles.

H-1b(1): Training Content: Plant-Specific Training

Facility personnel training requirements vary from position to position, with each position requiring a unique training path. To facilitate the development and scheduling of these training paths, the training program, in general, is divided into four basic steps and refresher training.

H-1b(1)(a): Initial Training

The Initial Training Program includes indoctrination and familiarization training designed to ensure personnel fulfill their basic training requirements; it is conducted at the BPBG Training Facility. Introductory safety training topics, and other training required by the individuals' assigned positions and the needs of the facility also will be provided.

H-1b(1)(b): System Training

System training is conducted at the BPBG Training Facility. This training will include detailed system specific training and seminars.

H-1b(1)(c): Advanced Training

Advanced training is to provide job/task/equipment specific training.

H-1b(1)(d): Emergency Response Training

The curriculum for Emergency Response Training has been designed to ensure personnel receive the appropriate level of response training based on job and regulatory requirements. The Training Department, in conjunction with facility Emergency Response personnel, will ensure the training program meets the requirements of BPBG Team and the regulatory requirements set forth by the OSHA.

H-1b(1)(e): *Refresher Training*

Some refresher training is driven by regulatory requirements. For other refresher training, engineering change proposals, permit modifications, revisions to technical documentation, facility baseline changes, regulatory changes, and Student/Instructor Course Evaluations will be reviewed to determine the necessity for changes to training materials. If there is a significant training impact associated with the reviews/changes and technical information such as operating parameters or the sequence of operations is affected, training materials will be revised as quickly as possible to reflect the latest information.

In some cases, information related to personnel safety, equipment safety, a threat to the environment, or conduct of facility operations will require a more immediate resolution. In these cases, the response must be immediate and will require either written or verbal communications to invoke an immediate change, followed by a formal revision to training materials. In these cases, a "pen and ink" correction of materials is acceptable until formal approval is granted through the normal review process.

In some cases, the information received will not require a change to a Training Program but will require the information to be disseminated to personnel to reinforce certain aspects of their job responsibilities.

1. Immediate Communication of Information – Information related to safety of the public or facility personnel, the environment, or conduct of operations. This type of change/information must be disseminated to personnel prior to the next assumption of job responsibilities. Changes requiring immediate training can be presented to the workforce during pre-shift briefs, supervisors' meetings, and safety/tailgate meetings.
2. Routine – Information that is editorial in nature, emphasizes an aspect of operations previously presented in the Training Program, or is administrative in nature. This training can be accomplished through the required reading program, during refresher training or through administrative notifications as appropriate for the specific situation.

H-1b(2): Training Content: *Regulatory Training*

H-1b(2)(a): OSHA and HAZWOPER

At a minimum, all facility personnel involved in hazardous waste management operations have or will have received training in the following areas:

1. Hazard Communications (HAZCOM)
2. Hazardous Waste Operations and Emergency Response (HAZWOPER)/OSHA 1910.120
3. Training for facility personnel includes 40 hours, consisting of classroom and hands-on experience, in the use of PPE, implementation of the emergency response plan, safe operating practices, identification of potential hazards or hazardous situations, etc., in accordance with the OSHA standards.
4. Annual refresher training of eight (8) hours, in addition to the 40-hour HAZWOPER training

H-1b(2)(b): RCRA Compliance

Facility personnel are qualified to meet the minimum requirements outlined in OSHA standard 29 CFR 1910.120 covering HAZWOPER training for operations conducted under RCRA. Qualification records for personnel are maintained by the BPBG Team.

H-1b(2)(c): HAZMAT

DOT training is required for any employee involved in the receiving, shipping, storing, or managing HAZMA (which by DOT definition also includes hazardous waste).

H-1b(3): Training Content: *SDC 1200 Facility Unique and Specific Hazards*

Any new personnel that will be involved with the handling of chemical ammunition are required to meet certain training requirements prior to their being assigned duties associated with the facility. The performance-based training program used by the BPBG Team consists of two major phases: classroom training and on-the-job training (OJT). Facility personnel must receive a grade of at least 80 percent on all classroom phase written examination prior to starting OJT. The content of the classroom curriculum is based on sound instruction practices using the instructional systems design process. All courseware is approved by subject matter experts (SMEs) and department managers.

The OJT Phase consists of hands-on training using approved procedures, while under the direct supervision and control of an incumbent operator. Approved procedures are based on equipment configuration, sound operating practices, and a task-specific job hazard analysis.

Similar to Laboratory employees, facility personnel operating and/or maintaining monitoring equipment must complete the certification training required by the Laboratory Manager. However, if facility personnel either are working inside the facility or with RCRA waste, they also must complete the RCRA compliance training.

Personnel involved in hazardous waste management activities must successfully complete an annual review of their initial hazardous waste management training.

Training will include classroom instruction, OJT, hands on/practical exercises (e.g., donning/doffing PPE), or a combination of these delivery methods.

H-1c: Training Manager [401 KAR 39:090 Section 1 and 40 CFR 264]

The BPBG Training Manager is responsible for the training of facility personnel. The responsibilities of the Training Manager are to:

1. Coordinate training of facility personnel in the proper operation of the facility in accordance with Federal, state, Army, and installation regulations.
2. Coordinate continuing training, as necessary, to inform personnel of new procedures, provide refresher training, and provide training for new personnel.
3. Ensure training records are maintained in accordance with 40 CFR 264.16(d) and 40 CFR 264.16(e).
4. Ensure facility personnel are trained in hazardous waste management and Contingency Plan implementation, including emergency procedures, and ensure personnel receive training appropriate to their positions.

H-1d: Relevance of Training to Job Position [401 KAR 39:090 Section 1 and 40 CFR 264]

Personnel performing tasks involving hazardous waste management receive training based on an analysis of their job tasks. The Training Department establishes learning objectives for these tasks. This training also will be based on the hazardous waste management procedures relevant to the tasks and the position in which they are employed.

H-1e: Training for Emergency Response [401 KAR 39:090 Section 1 and 40 CFR 264]

Emergency response training is designed and structured to ensure all personnel are trained to respond properly to emergency situations, as outlined in Part G: of this Permit Renewal, which is based on the BGAD Integrated Contingency Plan, and to maintain compliance, during emergencies, with applicable permit requirements and environmental regulations.

This training addresses non-routine situations that could lead to an emergency involving hazardous wastes, if proper responses are not implemented, such as:

1. Procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment
2. Feed Prohibitive Interlocks (FPI)
3. Communication and alarm systems
4. Implementation of the Contingency Plan and appropriate emergency notifications
5. Shutdown of operations and evacuation
6. Response to fires, unplanned explosions, or environmental releases
7. Additional topics covered during emergency response training include:
    a) The chemical characteristics of the waste personnel will be assigned to manage, that is, reactivity, toxicity characteristics, and presence of chemical agent
    b) Knowledge of what to do in the event of a spill or leak
    c) The types of protective equipment, including encapsulating suits, respirators, and other protective clothing to be worn

Introductory training and annual refresher sessions will be provided to BGCAPP personnel receiving emergency response training.

H-2: Implementation of Training Program [401 KAR 39:090 Section 1 and 40 CFR 264]

All personnel are trained prior to beginning work at the facility. All facility personnel are required to complete the training program specific to his/her job assignment and will not work unsupervised until training has been successfully completed. Facility personnel will successfully complete the initial training program within six months of the date of their employment, assignment, or when they are assigned to a new position at the facility. Training records for the personnel (to include records for trainers) are maintained onsite, and will include, at a minimum:

1. Job title for each position related to hazardous waste management operation and activities, and the name of each employee filling the position
2. Job descriptions specifying duties for each position, minimum qualifications required to fill the position, and required training for the position
3. Description of the type and amount of introductory and continuing training that will be given to each employee
4. Date each employee started working at the facility
5. Course enrollment, attendance, and successful completion information recorded for each course attended
6. All training records and documentation on current personnel are kept until closure of the building. Training records on former personnel will be kept for at least three years from the date last worked.

Part I: Closure Plan, Post Closure Plans and Financial Requirements [401 KAR 39:090 Section 1; 40 CFR 264.111–115, 264.178, and 264.601]

I-1: Closure Plan

The proposed SDC 1200 Facility Closure Plan includes decontamination of the DC and OTS equipment at the completion of the operational phase for nerve agent operations. Once decontamination operations are complete and monitoring is confirmed to be below the worker population limit (WPL), agent monitoring will be discontinued, and any follow-on operations will be governed by the BGAD RCRA Permit. It is within the RCRA Permit Renewal where the detailed closure requirements for this facility are contained.

Facility personnel cannot formally identify the facility end state until nearer the end of nerve agent operations. Therefore, the plan for final closure and turn-over of the SDC 1200 Facility cannot be finalized until later (i.e., after the Army and the Commonwealth of Kentucky agree on the final end state for the SDC 1200 Facility). Federal and Kentucky Statutes require the Commonwealth of Kentucky governor's approval for any further use following the final end-state and closure approach selected. The SDC 1200 Facility can have implications for potential reuse for BGAD.

During nerve agent operations at the SDC 1200 Facility or the storage magazine, any identified hazardous waste spill will be remediated and containerized immediately. Records of all spills and cleanup activities will be recorded in an operating record. Containerized nerve agent related spill cleanup materials can be stored in the <90-day storage area prior to being transferred to the WTS or off-site for disposal.

Upon completion of operations, all hazardous waste and hazardous waste residues that is in secondary containment will be removed. Equipment and structures will be decontaminated, if necessary, using an appropriate decontamination and water washing in accordance with the treatment technology requirements specified in 40 CFR 268.45. The decontamination residues will be containerized and can be stored in the <90-day storage area prior to being transferred off-site for treatment in accordance with applicable regulations.

I-2: Closure Performance Standards [401 KAR 39:090 Section 1; 40 CFR 264.178, 264.111 and 264.601]

The final closure performance standards will be presented under the BGAD Hazardous Waste Management Permit. The SDC Facility including the storage magazine will be decontaminated and confirmed to be less than the WPL for nerve agent prior to any follow-on operations.

After decontamination and monitoring, BGCAPP will provide KDEP a PE certified decontamination report to verify the SDC Facility is not contaminated with nerve agent. A permit modification will be submitted to discontinue monitoring during closure.

I-3: Closure Activities [401 KAR 39:090 Section 1; 40 CFR 264.111, 264.113-264.115, 264.178; and 264.601]

Decontamination will be performed in accordance with the Closure Plan, included in Volume II of this submittal.

I-4: Partial Closure Activities [401 KAR 39:090 Section 1; 40 CFR 264.112]

If partial closures are needed, the BPBG Team will revise the Hazardous Waste Management Permit and this closure plan in accordance with 401 KAR 39:090, Section 1 and 40 CFR 264.112.

I-5: Final Closure Activities [401 KAR 39:090 Section 1; 40 CFR 264.112(b)(4)]

As described above, the BGCAPP Team will perform decontamination for nerve agent at the SDC 1200 Facility. Final closure activities will be submitted by BGAD in a separate submittal once the end state is decided on.

I-6: Maximum Waste Inventory [401 KAR 39:090 Section 1, and 40 CFR 264.112(b)(3)]

The maximum waste munition inventory to be held in the facility at any given time will be determined by approval of the site safety submittal by the Department of Defense Explosive Safety Board (DDESB).

I-7: Schedule for Closure [401 KAR 39:090 Section 1; 40 CFR 264.112(b)(6)]

An updated schedule for closure will be submitted when available.

I-7a: Time Allowed for Closure [401 KAR 39:090 Section 1; 40 CFR 264.113 except for 264.113(e)(7)(v)]

At this time no specific date has been scheduled for implementation of decontamination for the SDC 1200 Facility. KDEP will be notified in writing at least 45 days prior to the date that any final decontamination operations are scheduled to begin.

I-7b: Extensions for Closure Time [401 KAR 39:090 Section 1; 40 CFR 264.113]

If required, any request for an extension to the closure period beyond the 180 days allowed by 40 CFR 264.113 will be made in accordance with the requirements of 401 KAR 39:090, Section 1 and 40 CFR 264.113.

I-8: Inventory Disposal, Removal or Decontamination of Equipment [401 KAR 39:090 Section 1; 40 CFR 264.113]

I-8a: List of Equipment and Structures

The SDC 1200 Facility will not have a final end state disposition until nearer the end of nerve agent destruction operations. Therefore, this section only covers nerve agent decontamination at the SDC 1200 Facility. A final list of all equipment and structures will be included in the facility Decontamination and Monitoring Plan.

I-8b: Criteria for Determining Contamination

The criteria for determining the appropriate decontamination methods will be based on operational and monitoring records. If there is no evidence or record of spills or contamination, closure will be limited to making an administrative (record keeping) activity report. Headspace monitoring will be the primary method used to determine the effectiveness of agent decontamination activities. Decontamination effort will continue until acceptable levels are met and confirmed.

I-8c: Description of Decontamination Procedures Including Cleanup Materials, Equipment, and Residues

Procedures used to decontaminate areas and equipment with or without a history of “liquid” agent contamination will be similar. Following waste removal, decontamination methods will potentially include low- and high-pressure washing with water, dilute caustic, or steam treatment. Other decontamination methods (e.g., to include surfactants) will only be used after being approved by the lab. Approval requires assurance that the decontamination method does not interfere with the agent monitoring systems and that decontamination efforts can be validated. Testing for potential interferences is the responsibility of the BGCAPP laboratory and the facility Decontamination and Monitoring Plan will be prepared for approval and signature by the BGAD Commander. Experience with decontamination efforts at other demilitarization sites has demonstrated that water, caustic and steam are effective methods for the removal and destruction of agent contamination. Because decontamination activities generate secondary wastes (e.g., used PPE, wipes, and other trash/waste) these wastes will potentially become contaminated and will be categorized as agent derived.

I-8d: Disposal Procedures for Soil, Rinse Water, etc.

Any agent contaminated secondary closure wastes will be sampled, characterized, and shipped to an appropriately permitted, commercial TSDF. Both hazardous wastes that are agent-derived and other wastes characterized as hazardous wastes due to the presence of other constituents will be shipped offsite for final treatment/disposal.

I-8e: Proposed Procedures/Means to Demonstrate Effectiveness of Decontamination

Head space or extractive analysis results will be used to confirm the completion of decontamination for HWSUs.

I-9: Closure of Containers [401 KAR 39:090 Section 1; 40 CFR 264.178]

The BPBG Team will perform appropriate decontamination of the permitted container storage area (i.e., the storage magazine) in accordance with 40 CFR 264.178, which includes:

1. Removing wastes and containers from the permitted storage area.
2. Dry vacuuming (i.e., using a vacuum with a HEPA filter) to remove the debris and dust from the secondary containment.
3. Cleaning and/or decontamination of the secondary containment using cleaning and decontamination aids as appropriate.
4. Analysis of final rinse or concrete chip samples from areas within the secondary containment of the permitted storage magazine.

5. Continuing cleaning, decontaminating, and monitoring/sample analysis until closure criteria are achieved.
6. The IONEX filter system carbon banks and filters will be removed and disposed of in accordance with the WAP. The filter housing and associated ductwork will be decontaminated and monitored to acceptable levels.

I-10: Closure of Tanks [401 KAR 39:090 Section 1; 40 CFR 264.197]

Not applicable. The SDC 1200 Facility does not have any of these HWMUs and, therefore, these provisions do not apply to the facility.

I-11: Closure of Waste Piles [401 KAR 39:090 Section 1]

Not applicable. The SDC 1200 Facility does not have any of these HWMUs and, therefore, these provisions do not apply to the facility.

I-12: Closure of Surface Impoundments [401 KAR 39:090 Section 1]

Not applicable. The SDC 1200 Facility does not have any of these HWMUs and, therefore, these provisions do not apply to the facility.

I-13: Closure of Incinerators [401 KAR 39:090 Section 1]

Not applicable. The SDC 1200 Facility does not have any of these HWMUs and, therefore, these provisions do not apply to the facility.

I-14: Closure of Landfills [401 KAR 39:090 Section 1]

Not applicable. The SDC 1200 Facility does not have any of these HWMUs and, therefore, these provisions do not apply to the facility.

I-15: Closure of Land Treatment [401 KAR 39:090 Section 1]

Not applicable. The SDC 1200 Facility does not have any of these HWMUs and, therefore, these provisions do not apply to the facility.

I-16: Closure of Subpart X Units [401 KAR 39:090 Section 1; 40 CFR 264.601]

The SDC 1200 Facility includes both a Subpart X unit with a history of treating “liquid” agent and areas within the enclosure area without a history of “liquid” agent or other contamination. This approach includes:

1. Wastes and waste constituents will be removed from the SDC 1200 System/Subpart X unit.
2. Wastes and waste residues will be characterized and shipped offsite for appropriate final treatment and/or disposal at an appropriate permitted RCRA facility.
3. The BGCAPP Team will use rinse, wipe or chip sampling for verification of decontamination of areas with a history of “liquid” agent contamination.

4. The BGCAPP Team will use historical records and administrative documentation for areas with no history of agent contamination.

The SDC 1200 System/Subpart X unit will be cleaned of debris/dusts, decontaminated, verified clean for agent using sample results (headspace analysis). The unit will not be closed but will remain in standby until BGAD follow-on activities are decided and approved.

I-17: Closure Certification [401 KAR 39:090 Section 1; 40 CFR 264.115]

Closure of each of the HWMUs will be included in a single decontamination report certified by the operator and a registered PE IAW 40 CFR 264.115. Decontamination certification will be provided within 60 days of completion of decontamination activities. The PE, or a representative under the PE's responsible charge, will be present during decontamination activities. BGCAPP will notify KDEP in advance of any major decontamination activities (i.e. DC, Buffer Tank, IONEX Filter Units). These activities will include containment inspection, cleaning and decontaminating, wipe sampling, headspace monitoring, or rinsate sampling. Observations or inspections by the PE, or a representative under the PE's responsible charge, will be sufficient to determine the adequacy of each major activity.

Within 60 days of completing decontamination activities, BGCAPP will submit the closure report and PE certification to KDEP.

I-18: Post-Closure Plan [401 KAR 39:090 Section 1; 40 CFR 264.118 and 264.603]

These regulatory requirements are not applicable to the SDC 1200 Facility. Design of the facility does not include any waste disposal units, nor land treatment or storage units. Currently, there is no expectation of post-closure care. If unexpected changes occur, the plan will be modified and submitted for approval.

I-19: Inspection Plan [401 KAR 39:090 Section 1; 40 CFR 264.111, 264.118 and 264.601]

DC / OTS and storage magazine inspections (i.e., those required by the RCRA permit or regulations) will continue until decontamination activities are complete. At completion of decontamination and / or closure activities, no additional processing will be conducted under this permit. Accordingly, all inspections will cease until such time as the unit is transferred to another operator or the unit is dismantled and disposed.

I-20: Monitoring Plan [401 KAR 39:090 Section 1; 40 CFR 264.118, 264.601, and 264.602]

As long as agent-derived wastes remain at the SDC 1200 Facility, physical facility security will remain in place and air monitoring for chemical agent will continue.

I-21: Notices Required for Disposal Facilities [401 KAR 39:090 Section 1; 40 CFR 264.300]

Not applicable. The SDC 1200 Facility does not include any disposal facilities; therefore, these regulatory requirements do not apply.

I-22: Closure Cost Estimate [401 KAR 39:090 Section 1; 40 CFR 264.142]

Not applicable. The owner of the SDC 1200 Facility is the Federal government, which is not required to provide financial assurances or a closure cost estimate.

I-23: Financial Assurance Mechanism for Closure [401 KAR 39:090 Section 1; 40 CFR 264.143]

Not applicable. The owner of the SDC 1200 Facility is the Federal government, which is not required to provide financial assurances or a closure cost estimate.

Figure I-1: SDC 1200 Proposed Closure Schedule

The information on the proposed facility closure schedule is based on available information and the current understanding of the *Facility End State,* and includes the following:

1. Facility closure will begin following the end of Agent Operations milestone.
2. The initial closure activities (equipment decontamination) will be performed by workers on shifts operating 7 days per week and 24 hours per day.
3. During the administrative portions of closure (e.g., validations of laboratory results, certification of monitoring results, follow-on turnover activities, preparation of closure report), the work will likely occur on a 5 day per week and 40-hour work week basis.

The updated schedule for closure will be submitted when available.

Part J: Other Federal Laws

The SDC 1200 Facility, located on the BGCAPP Main Plant, adheres to the existing permits of BGAD. The BGAD Chemical Storage Permit previously addressed other federal laws pertinent to the SDC 1200 Facility.

As stated in the BGAD Chemical Storage Permit, there are wetlands located at BGAD. However, the SDC 1200 Facility will not affect these wetlands.

J-1: Wild and Scenic River Act

Facility operations will not affect wild or scenic rivers.

J-2: National Historic Preservation Act

Operations of the SDC 1200 Facility will not affect cultural resources on BGAD. No additional facilities will be constructed in support of facility operations. During facility construction, discovery of a cultural resource will require halting of construction activities and notification of appropriate personnel to identify and remove the item.

J-3: Endangered Species Act

There are two rare plant species, with one species of concern, located on BGAD. The Kentucky State Nature Preserves Commission survey performed from 1992–1994 identified the Running Buffalo Clover and the Spinulose Wood Fern as rare plant species found on BGAD. During this survey, a map of the areas in which these species were growing was prepared. The SDC 1200 Facility is not located in these areas.

BGAD has not identified endangered animal species on BGAD or the area around the SDC 1200 Facility.

J-4: Coastal Zone Management Act

The operation of the facility will not affect any coastal zone areas.

J-5: Fish and Wildlife Coordination Act

The operation of the facility does not result in the impoundment, diversion, control, or modification of any surface water bodies; therefore, this act is not applicable.

Part K: Waste Minimization [401 KAR 39:060 Section 5 & 40 CFR 124, and 270]

The operations of the SDC 1200 Facility will be conducted with waste minimization goals in mind. The BPBG Team is committed to excellence in environmental protection. All employees are stewards of the environment and responsible for the elimination, reduction, recycling, and proper disposal of waste. Source reduction and waste minimization are prime considerations in all phases of facility: Design, Construction, Systemization, Operations, and Closure. Simply stated, the facility's environmental policy is:

> *"We will eliminate waste generation at the source wherever feasible without compromising quality. When waste generation occurs, we will employ practical measures to reduce its volume and toxicity."*

The BPBG Team's commitment to this policy will reduce overall risk exposure and allow achievement of these pollution prevention goals, resulting in an expected lifecycle cost savings for operation of the SDC 1200 Facility. The facility Waste Minimization Plan is document 24915-00-G01-GGEN-00028 and is provided.

Part L: Organic Air Emissions [401 KAR 39:060 Section 5, 40 CFR §264.1030, §264.1050, and §264.1080]

L-1: Subpart AA

Subpart AA regulations apply to process vents for certain equipment which process hazardous waste with an annual average total organics concentration of greater than or equal to 10 parts per million (ppm) by weight. Subpart AA applies only to distillation columns, fractionation units, thin film evaporators, solvent extractors, and air or steam strippers, but also includes requirements for closed-vents and control devices.

The SDC 1200 facility does not contain any distillation columns, fractionation units, thin film evaporators, solvent extractors, and air or steam strippers regulated under Subpart AA. The facility does contain a closed-vent and control device used for control of emissions from the Subpart CC miscellaneous unit (SDC chamber/Buffer Tank). The vent will direct gas/vapor from the Buffer Tank to the THO, which acts as the Subpart CC control device. The control vent is located within secondary containment, with vapor from containment passed to an activated carbon control device.

The THO control device will have a continuous temperature monitor that will have an accuracy of ±1 percent of the temperature being monitored in °C or ±0.5 °C, whichever is greater, installed at a location in the combustion chamber downstream of the combustion zone, and will have readings inspected at least once each operating day to check for control device operation as required by 40 CFR §264.1033(f)(2). Operating temperatures will be equivalent to (no less than 100 °C below) the temperatures demonstrated to provide at least 95% organic removal as required by 40 CFR §264.1087(c)(1) using performance tests as specified in 40 CFR §264.1087(c)(5)(iii).

The closed-vent is located within secondary containment and is inaccessible for direct inspection and monitoring as required by 40 CFR §264.1033(l) using monitoring test methods and procedures of 40 CFR §264.1034. In addition, both the control vent and its containment are unsafe to inspect and monitor during munitions processing, as personnel are not allowed in the SDC room during munitions processing due to agent and energetics hazards. As the closed-vent will never be safe to inspect and monitor, MINICAMS® units during the GB and VX campaigns will be used as the alternative monitoring method for the closed-vent, with unexplained elevated readings in the SDC room investigated. Monitoring will be provided using the units listed in the MINICAMS/DAAMS Monitoring Table (included in Volume II).

Records demonstrating compliance with 40 CFR Part 264 – Subpart AA will be maintained at the facility for a period of not less than three (3) years, including this permit renewal request, which documents the rationale for designating the closed-vent system as unsafe to monitor in accordance with 40 CFR §§264.1033(o) and 264.1035(c)(9).

In accordance with 40 CFR §264.1036, a semiannual report will be prepared and submitted to the KDEP DWM documenting all information required by 40 CFR § 264.1036 for that semiannual reporting period; the semiannual report will be submitted by January 31st and July 31st of each calendar year, unless during the semiannual reporting period, the control device does not exceed or operate outside of the design specifications as defined in 40 CFR §264.1035(c)(4) and this section for more than 24 hours, in which case a report is not be required.

L-2: Subpart BB

Subpart BB regulations applies to any pumps, valves, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, and flanges or other connectors, which contain or contact hazardous waste streams with equal or greater than 10 percent by weight total organics.

Chemical agents GB and VX will be present in munitions at concentrations greater than 10 percent. Both agents have a vapor pressure of <0.3 kiloPascals (kPa) at 20°C, as shown in Table L-1, and are therefore considered heavy liquids per 40 CFR §264.1031. Upon heating of the munitions to the final operating temperature, the heavy agent liquids will no longer be present, and the SDC system will contain only gases.

Table L-1: Chemical Agent GB and VX Vapor Pressures

[redacted]

The SDC 1200 and OTS contain no pumps, compressors, pressure relief devices, sampling connection systems, or open-ended valves or lines regulated under Subpart BB.

Table L-2 provides a list of valves, flanges, and other connectors present in the SDC subject to Subpart BB requirements. The valves in vapor service listed in Table L-2 will be unsafe to monitor due to the agent and energetics hazards associated with entry into the area in which these will be located, and these are exempt from monitoring in accordance with 40 CFR §264.1057(g); these should also be considered exempt from the requirements of 40 CFR §264.1057(g)(2) as safe to monitor conditions will not occur during operation, and, due to the batch nature of the process, no organics will be present during maintenance and other activities in which the SDC unit is shutdown. In addition, flanges and connectors (as well as valves) of the SDC are inaccessible, and these are exempt from monitoring under 40 CFR §264.1058(e). The SDC will be located within an area (secondary containment area) held at a negative static pressure (i.e., with respect to the external atmosphere), with this area vented by the HVAC system through an activated carbon system. The secondary containment atmosphere external to the SDC will also be continuously monitored using MINICAMS® as listed in the MINICAMS/DAAMS Monitoring Table (included in Volume II). Repairs to equipment listed in Table L-2 will comply with the requirements of 40 CFR §264.1058.

The THO receives vapor/gases from the buffer tank and serves as the control device for the SDC. While the OTS system contains pumps, valves, flanges, and connectors, it is not considered ancillary equipment to any RCRA permitted waste treatment unit or system, therefore Subpart BB does not apply to the OTS equipment. Also, the exhaust stream from the THO will not contain organics and would not be subject to Subpart BB requirements. The OTS system is listed on the BGCAPP/BGAD Title V Air Quality Permit and will comply with the Title V requirements listed in the permit.

Valves will be subject to the Subpart BB recordkeeping requirements of 40 CFR § 264.1064, with this permit renewal request documenting valves in gas/vapor services as unsafe to monitor in accordance with 40 CFR §264.1057(g) and 40 CFR § 264.1064(h). Connectors and flanges are exempt from recordkeeping requirements of 40 CFR § 264.1064 in accordance with 40 CFR §264.1058(e). Per 40 CFR § 264.1065, a semiannual report will be prepared and submitted to the KDEP DWM documenting all information required for that semiannual reporting period, with the report submitted by January 31st and July 31st of each calendar year. A report will not be required if, during the semiannual reporting period, leaks from valves are repaired as required in 40 CFR §264.1057(d).

Table L-2: Subpart BB Valves, Flanges, and Other Connectors

Equip-ment Tag	Equipment Description	Near	Equip-ment Type	Draw-ing No.	Fluid	Monitoring Exemption
UV11417	flanges, valve	SDC	F, V	PID-2	Heavy Liquid (>10%) and Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
Camera 5	Flange for Cooling Air	SDC	F	PID-2	Heavy Liquid (>10%) and Gas	40 CFR §264.1058(e)
UV11406	2 Hydraulic Seals to LC 2	SDC	Hydraulic seals	PID-2	Heavy Liquid (>10%) and Gas	40 CFR §264.1058(e)
TIA 11402	Temp indicator	SDC	F	PID-2	Heavy Liquid (>10%) and Gas	40 CFR §264.1058(e)
Loading Gate 2	Slide Gate to Loading Chamber 2	SDC	Slide Gate	PID-2	Heavy Liquid (>10%) and Gas	40 CFR §264.1058(e)
UV11403 UV11404 UV11412	6 Hydraulic Seals to LC 2	SDC	Hydraulic seals	PID-2	Heavy Liquid (>10%) and Gas	40 CFR §264.1058(e)
114V03	Flange, valve	SDC	F, V	PID-2	Heavy Liquid (>10%) and Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
114V07	Flange, valve	SDC	F,V	PID-2	Heavy Liquid (>10%) and Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
PI 12005	Flange	SDC	F	PID-2	Gas	40 CFR §264.1058(e)
120V07	Flange, valve	SDC	F, V	PID-2	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
TI 12006	Flange	SDC	F	PID-2	Gas	40 CFR §264.1058(e)
120V25	Flange, valve	SDC	F, V	PID-2	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
GI 112001-12	Flange for Air Fan 120	SDC	F	PID-2	Gas	40 CFR §264.1058(e)
120V26	Flange, valve	SDC	F, V	PID-2	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
140V03	Flange, valve	SDC	F, V	PID-2	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)

Equip-ment Tag	Equipment Description	Near	Equip-ment Type	Draw-ing No.	Fluid	Monitoring Exemption
114V02	Flange, valve	SDC	F, V	PID-2	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
112V02	Flange, valve	SDC	F, V	PID-2	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
GS+ 12001, 12002, 12003	Connector/ flange	SDC	C, F	PID-2	Gas	40 CFR §264.1058(e)
160	Buffer Tank	SDC	F, F, Expan-sion Joint, F	PID-3	Gas	40 CFR §264.1058(e)
114V01	Flange, valve	Buffer Tank	F, V	PID-3	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
160V01	Flange, valve	Buffer Tank	F, V	PID-3	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
UV16005	Flange, valve	Buffer Tank	F, V	PID-3	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
162V01	Flange, valve	Buffer Tank	F,V	PID-3	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
TI 16004	Connector/ flange	Buffer Tank	C,F	PID-3	Gas	40 CFR §264.1058(e)
310V16	Flange, valve	THO	F,V	PID-10	Gas	40 CFR §264.1057(g) / 40 CFR §264.1058(e)
TIC31015	Flange	THO	F	PID-10	Gas	40 CFR §264.1058(e)
N11A, N18	Flanges at Circular Pipeline	THO	F, F	PID-10	Gas	40 CFR 264.1058(e)
Coupler (reducer)	Flange	THO	F	PID-10	Gas	40 CFR §264.1058(e)

L-3: Subpart CC

Subpart CC under 40 CFR §264.1080 requires air emission controls be used for Subpart J tanks, Subpart I containers, and Subpart X miscellaneous units which manage hazardous wastes containing an average volatile organic concentration of greater than or equal to 500 ppm by weight at the point of waste origination.

The SDC 1200 facility storage magazine will be a Subpart I container storage facility used to store munitions prior to treatment in the SDC. The munitions consist of:

1. Warheads (M56) containing approximately 1.2 gallons of chemical agent GB or VX and 3.2 lbs of energetics – total volume <0.0076 m^3.

These volumes are all less than 0.1 m^3 (26.4 gallons) of hazardous waste liquid. Consequently, Subpart CC requirements do not apply to the munitions stored in the storage magazine or at the SDC building per 40 CFR §264.1080(b)(2). No other containerized liquids with greater than or equal to 500 ppm by weight volatile organics will be stored at the SDC facility.

The THO will receive vapor/gases through a closed-vent from the buffer tank and serve as the control device for the SDC miscellaneous unit regulated under Subpart CC. The THO will serve as an enclosed combustion device per 40 CFR §264.1087(c) meeting the design and operating requirements of 40 CFR §264.1033(c) and providing 95% organic removal as required by 40 CFR §264.1087(c)(1) using performance tests as specified in 40 CFR §264.1087(c)(5)(iii). The THO control device will have a continuous temperature monitor that will have an accuracy of ±1 percent of the temperature being monitored in °C or ±0.5 °C, whichever is greater, installed at a location in the combustion chamber downstream of the combustion zone, and will have readings inspected at least once each operating day to check for control device operation as required by 40 CFR §264.1033(f)(2) to ensure these are equivalent to (no less than 100 °C below) the temperatures demonstrated to provide at least 95% organic removal.

The closed-vent is located within secondary containment and is inaccessible for direct inspection and monitoring as required by 40 CFR 40 §264.1087(b)(4) and CFR §264.1033(l) using monitoring test methods and procedures of 40 CFR §264.1034. In addition, both the control vent and its containment are unsafe to inspect and monitor during munitions processing, as personnel are not allowed in the SDC room during munitions processing due to agent and energetics hazards. As the closed-vent will never be safe to inspect and monitor, MINICAMS® units during the GB and VX campaigns will be used as the alternative monitoring method for the closed-vent, with unexplained elevated readings in the SDC room investigated. Monitoring will be provided using the units listed in the MINICAMS/DAAMS Monitoring Table (included in Volume II).

The OTS system contains a process tank and containers that are not considered regulated equipment under RCRA, therefore Subpart CC does not apply to the OTS equipment. Also, neither the exhaust stream from the THO nor liquid wastes produced by the OTS will contain organics and so are not subject to Subpart CC requirements. The OTS system is listed on the BGCAPP/BGAD Title V Air Quality Permit and will comply with the Title V requirements listed in the permit.

Repair of defects or leaks shall be in accordance with 40 CFR §264.1033(l)(3) and 40 CFR §264.1084(k). Recordkeeping requirements will be performed in accordance with 40 CFR §264.1089. Reporting requirements will be performed in accordance with 40 CFR §264.1090, with a semiannual report prepared and submitted to the KDEP DWM documenting all information required for that semiannual reporting period; the semiannual report will be submitted by January 31st and July 31st of each calendar year. A report will not be required if, during the semiannual reporting period, the THO control device had no period of 24 hours or longer in which it was operating continuously in noncompliance with the applicable operating values defined in § 264.1035(c)(4).

Part M: Signatures [401 KAR 39:060 Section 5 & 40 CFR 124 and 270]

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to 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."

Joe Curcio
Project Manager
Bechtel Parsons Blue Grass
BGCAPP Facility Operator

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Samuel W. Morgan III
Colonel, U.S. Army
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