24915-00-GPE-GGPT-00529

Resource Conservation and Recovery Act (RCRA)

Hazardous Waste Storage & Treatment Permit Renewal Request, Main Plant Facility

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
300 Sower Blvd.
Frankfort, Kentucky 40601

Submitted by:

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(CDRL A010)

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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
ACS	agent collection system
ACWA	Assembled Chemical Weapons Alternatives
AEL	airborne exposure limit
AFS	aluminum filtration system
ANR	agent neutralization reactor
ANS	agent neutralization system
AOC	Army Operations Center
APS	aluminum precipitation system
ASTM	ASTM International (formerly the American Society for Testing and Materials)
ATE	ACWA test equipment
BGAD	Blue Grass Army Depot
BGCA	Blue Grass Chemical Activity
BGCAPP	Blue Grass Chemical Agent-Destruction Pilot Plant
BPBG	Bechtel Parsons Blue Grass
BPBGT	Bechtel Parsons Blue Grass Team
BTRA	Bounding Transportation Risk Assessment
CIMRA	Chemical Incident or Mishap Response and Assistance
CCR	central control room
CCTV	closed-circuit television
CFR	Code of Federal Regulations
CHB	Container Handling Building
CLA	chemical limited area
CON	Control Room
CRM	contaminated rocket motor
CRW	containerized rocket warhead
CSB	control and support building
CSF	Container Storage Facility
DA	Department of the Army
DRE	destruction and removal efficiency
decon	decontamination
DoD	Department of Defense
DOT	Department of Transportation
EAR	Export Administration Regulation
EBH	energetics batch hydrolyzer
ECR	explosive containment room
ECV	explosive containment vestibule
EDT	explosive destruction technology
ENR	energetics neutralization reactor
ENS	energetics neutralization system

EONC	enhanced on-site container
EPA	U.S. Environmental Protection Agency
FCC	facility construction certification
GATS	General Atomics Total Solution
GB	nerve agent sarin, isopropyl methylphosphonofluoridate
GLS	gas/liquid separator
H	blister agent mustard made by the Levinstein process, bis(2-chloroethyl) sulfide or 2,2'-dichlorodiethyl sulfide
HEPA	high-efficiency particulate air (filter)
HHRA	human health risk assessment
HSA	hydrolysate storage area
HVAC	heating, ventilating, and air-conditioning
HWMU	hazardous waste management unit
IBC	intermediate bulk container
IPA	isopropyl alcohol
ITAR	International Traffic in Arms Regulations
KAR	Kentucky Administrative Regulation
KDEP	Kentucky Department for Environmental Protection
KRS	Kentucky Revised Statute
KY	Kentucky
LFL	lower flammable limit
MCS	MPT cooling system
MDB	Munitions Demilitarization Building
MPR	motor packing room
MPT	metal parts treater
MSR	motor shipping room
MWS	munitions washout system
NCR	nose closure removal
NCRS	nose closure removal station
NRC	National Research Council
OB/OD	open burning/open detonation
OPSEC	operations security
OSHA	Occupational Safety & Health Administration
OTE	off-gas treatment (effluent) EBH/ENS
OTM	off-gas treatment system (MPT/ANS)
P&ID	piping and instrumentation diagram
PCB	polychlorinated biphenyl
PE	professional engineer
PEO ACWA	Program Executive Office – Assembled Chemical Weapons Alternatives
PFD	process flow diagram
PHS	projectile handling system
PPE	personal protective equipment

psi	pound per square inch
psia	pound per square inch, absolute
RCM	rocket cutting machine
RCRA	Resource Conservation and Recovery Act
RCU	recirculating cooling unit(s)
RD&D	research, development, and demonstration
RM	rocket motor
RO	reverse osmosis
RQ	reportable quantity
RSM	rocket shear machine
SCWO	supercritical water oxidation
SDS	spent decontamination system
SFT	shipping and firing tube
SOP	standing operating procedure
SPB	supercritical water oxidation (SCWO) processing building
SRC	single round container
STA	supercritical water oxidation (SCWO) tank area
SWMU	solid waste management unit
TAR	tank assessment report
TCTR	tray/container transfer room
TMA	toxic maintenance area
TOC	total organic carbon
TOCDF	Tooele Chemical Agent Disposal Facility
TOX	thermal oxidizer
TRRP	technical risk reduction program
TSCA	Toxic Substances Control Act
TSDF	treatment, storage, and disposal facility
UN	United Nations
UPA	unpack area
VSL	vapor screening level
VX	nerve agent, O-ethyl S-(2-diisopropylaminoethyl) methylphosphonothiolate
WAP	Waste Analysis Plan
WTS	waste transfer station

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 38:090, Section 2 & 40 CFR 270.14]

The BGCAPP Main Plant was constructed by the Department of Defense (DoD) and the Department of the Army for the purpose of destroying chemical-agent-filled munitions stored at the Blue Grass Army Depot (BGAD). The stockpile of chemical agent items included munitions filled with either GB or VX nerve agents in projectiles or rockets, and Department of Transportation (DOT) bottles. The BGCAPP Main Plant has completed its weapons treatment and destruction activities and is currently undergoing closure. The remaining BGCAPP Main Plant active units include the WTS and CSF storage areas. These units are being utilized to facilitate waste storage and offsite disposal of BGCAPP Main Plant closure waste and waste generated by the BGCAPP SDC 1200 and SDC 2000 facilities.

This permit renewal is being prepared to facilitate BGCAPP Main Plant closure activities and storage of BGCAPP SDC 1200 and SDC 2000 process and closure wastes for off-site disposal. This document is formatted in a typical Part B format, information related to munitions and munitions treatment is retained in this document for historical reference and understanding of remaining closure activities associated with the original BGCAPP Main Plant Part B permit. BGCAPP was a combination of Subpart X and Subpart J permitted neutralization systems, Subpart X permitted supercritical water oxidation (SCWO) systems, and Subpart X thermal treatment systems, as well as Subpart J regulated tank systems and Subpart I regulated container storage areas. During the remainder of the closure phase, the Main Plant will only require Subpart I regulated container storage areas to be permitted under RCRA.

The BGCAPP facility is located along the eastern boundary of the BGAD chemical limited area (CLA), which allows for efficient transfer of waste stored in HWSUs to BGCAPP. The BGCAPP facility will store these state-listed hazardous wastes under both Federal and Commonwealth of Kentucky hazardous waste regulations.

The format of this revised permit application mirrors the structure of the Kentucky Department for Environmental Protection (KDEP) Part B Permit Application Review Checklist. This format includes applicable Kentucky Administrative Regulation (KAR) sections, with the corresponding Code of Federal Regulations (CFR) citations also identified to allow a more efficient regulatory review of this permit revision.

B-1: General Description [401 KAR 38:090, Section 2 & 40 CFR 270.14(b)]

BGAD is located in the Blue Grass region of east central Kentucky, approximately in the 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, approximately 5 miles southeast of the center of Richmond, and 10 miles northeast of Berea, Kentucky (Figure B-1).

The installation includes a variety of buildings, structures, and undeveloped areas. BGAD is located in the Outer Blue Grass Subdivision of the Blue Grass physiographic region. The topography of the Outer Blue Grass Subdivision includes moderately undulating to gently rolling hills that steepen near major streams. BGAD has open fields and rolling hills with gentle slopes dotted with woodlots of varying sizes. BGAD is surrounded by agricultural, industrial, low-density residential, commercial, and public land use areas. The public uses of land in the BGAD/Richmond area include educational and recreational activities and areas.

BGAD, a federal facility, is a Joint Munitions Command (JMC) Depot with a primary mission of: (1) to provide America's Joint Warfighters reliable, timely and cost-effective munitions and chemical defense equipment in support of full spectrum Military Operations, and (2) to safeguard the remainder of the National Chemical Weapons Stockpile until demilitarization. BGAD is staffed to store conventional (i.e., non-nuclear and non-chemical) munitions for major force deployment. BGAD is also the Department of 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.

In addition to conventional munitions, the Department of the Army began to store chemical weapons at the Blue Grass Installation in 1944. BGAD began to receive shipments of modern chemical weapons in 1952, and receipt of chemical weapons continued until the mid-1960s. Since the mid-1960s, BGAD's mission has included the safe storage of existing chemical weapons.

In 1996, the Department of the Army established the Blue Grass Chemical Activity (BGCA) as a special unit focused on the management and storage of chemical weapons on BGAD. Blue Grass Chemical Activity (BGCA) is a tenant organization of BGAD. The primary mission of BGCA is the safe storage and monitoring of the chemical weapons stockpile located within the Chemical Limited Area (CLA), a highly secured 250-acre site in the northern part of BGAD.

The BGCAPP Main Plant is located wholly within BGAD's boundary. The BGCAPP Main Plant is approximately 19 acres in size and has its entrance on Kentucky (KY) Highway 52. The BGCAPP Main Plant is operated by the Bechtel Parsons Blue Grass (BPBG) Team and was originally permitted to destroy the chemical weapons stockpile stored at BGAD by BGCA, including chemical weapons, process wastes, and secondary wastes. This permit renewal application requests Subpart I regulated container storage for the Waste Transfer Station (WTS) and Container Storage Facility (CSF). All other previously permitted units are in various phases of closure and are listed on the Part A as inactive "IN", clean closed "CC" or "CN" is used for units constructed and not ever having managed hazardous waste.

The Commonwealth of Kentucky has listed the chemical agents GB and VX as a hazardous waste [401 KAR 31:040, Lists of hazardous waste, Section 7 – Additional Requirement Concerning Nerve and Blister Agents (Waste Numbers N001 and N002)]. Processing these agents and associated wastes has produce agent-derived listed hazardous waste (N101, N102, N201, N202, N301, N302, N401, N402, N501, N502, N601, N602, N701, N702, N801, N802, N901, N902, N1001, N1002) and other hazardous wastes, which are outlined in Part A of this application.

B-2: Topographic Map [401 KAR 38:090, Section 2(17) & 40 CFR 270.14(b)(19)]

Figure B-1 is a topographic map of BGAD and surrounding area showing the general location of the BGAD. This map (supplemented by the other figures identified below) contains the features described below.

1. 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 KDEP approve the alternative map scale in this Permit Renewal Request. Figure B-2 contains a north arrow and the date the figure was prepared.

2. 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 BGCAPP facility.

3. 100-Year Floodplain

The BGCAPP 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 BGCAPP facility) is included as Figure B-3.

4. Surface Waters

Figure B-2 shows major surface water features in blue, and the dry weather and intermittent streams on the BGAD and in the areas near the BGCAPP facility.

5. Surrounding Land Use

BGAD surrounds the BGCAPP facility, and the Department of the 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 will 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 Kentucky 2007 Agriculture Census database]. The main trend emerging in the area near BGAD is the conversion of small blocks of farmland into 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. Figure B-2 shows the land use around the BGCAPP facility and BGAD based upon land use information from the Madison County Comprehensive Plan, 2006.

6. Wind Rose

Figure B-4 displays a recent, 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 BGCAPP facility.

7. Legal Boundaries

Figure B-1 and Figure B-2 include BGAD legal boundaries; Figure B-2 shows the boundaries for the BGCAPP Main Plant, and the SDC 1200 and SDC 2000 facilities within BGAD.

8. Location of Access Control

Figure B-2 shows BGAD entrance to the BGCAPP facility. This access point is through a BGAD controlled gate (through BGAD Restricted Access perimeter). All personnel proceeding beyond this point (i.e., into the BGCAPP facility) are required to show DoD issued photo identification passes. The Department of the Army authorizes the use of force to prevent unauthorized entry into the BGCAPP facility during chemical agent operations. Areas used for RCRA chemical agent storage or processing within the BGCAPP facility are fenced and closely monitored.

9. Onsite and Offsite Injection and Withdrawal Wells

Injection or withdrawal wells are not located near the BGCAPP facility.

10. Buildings/Structures

Figure B-5 shows the buildings and structures associated with the BGCAPP facility. There are no established public recreational areas near the BGCAPP facility.

11. Sewers and Outfalls

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

12. Loading and Unloading Areas

Figure B-5 shows the overall BGCAPP facility layout, where the chemical agent-filled items were stored and subsequently treated. This layout shows all buildings and areas where wastes were treated and stored, the two remaining operational storage units (WTS, CSF) are outlined in red.

RCRA regulations define storage as:

> *"the holding of hazardous waste for a temporary period at the end of which the hazardous waste is treated, disposed of, or stored elsewhere" (40 CFR 260.10).*

Hereinafter, the use of the word "storage" refers to the RCRA definition of storage.

13. Fire Control Facilities

Fire control facilities provided for the BGCAPP facility include a sprinkler system or fire suppression devices inside all facilities that manage or store hazardous wastes as well as fire hydrants accessible to responding fire personnel for control of fires within the BGCAPP facility.

14. Flood Control or Drainage Barriers

The BGCAPP facility is located in Flood Zone X, 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 for the BGCAPP facility. The drainage from the BGCAPP facility is directed to the nearby retention basin used to capture storm water runoff.

15. Runoff Control Systems

The BGCAPP Main Plant provides runoff control via a storm water collection and discharge system and also uses gutters on all buildings. This system consists of the facility storm sewers and storm water discharges. The retention basin collects the BGCAPP facility runoff.

16. Locations of Hazardous Waste Units

The location of wastes stored and managed on-site are identified (by red outlines) on Figure B-5. Hazardous waste cleanup areas and hazardous waste disposal areas do not exist within the BGCAPP facility boundaries.

17. Access and Internal Roads

The initial access road to the BGCAPP facility is off KY Highway 52 as shown on Figure B-1, Figure B-2, and Figure B-5. Internal BGAD roads used for transport of materials and waste are discussed later in this Part.

B-3: Location Information [401 KAR 34:020, Section 9(1) and (2); 38:090, Section 2 (20) and Section 3 & 40 CFR 270.14(b)(11), and 270.14(b)(11)(i through v)]

B-3a: Geological Information

This section addresses the geology of the area upon which the BGCAPP facility is located, including the seismic characteristics, subsurface geology, and karst features.

B-3a(1): Seismic Consideration

The BGCAPP facility is located in Madison County, Kentucky, and is not listed in either 401 KAR 34:340 or Appendix VI of 40 CFR Part 264. A minor fault (Tate Creek Fault) lies approximately 1,500 feet to the south of the BGCAPP facility, and Figure B-6 identifies its location. However, Blume (Jacobs Engineering Group, Inc., and URS/John A. Blume and Associates, Engineer) conducted a geological study and seismological investigation of the facility location in 1987 and concluded the following:

> *"BGAD is located in a tectonic domain generally referred to as the Kentucky River Fault System. No faults in the region are known to have displaced geologically younger materials (Pleistocene and Holocene Ages), even though a number of older faults have displaced Paleozoic Era (400 million years ago) formations. Additionally, there are no indications of faults that are capable or potentially capable within the region."*

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 Map, Moberly Quadrangle, is included as Figure B-6. 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 the 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-7 identifies the soil types.

The Drakes Formation, made up of dolomite, limestone, and shale, underlies most of the BGAD and the area around the BGCAPP facility. 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 BGCAPP 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 as Figure B-3. This map clearly shows the BGCAPP facility is not part of the 100-year floodplain. The location of the BGCAPP facility is actually within an area outside those affected by 500-year flood events.

B-4: Traffic Information [401 KAR 38:090, Section 2(10) & 40 CFR 270.14(b)(10)]

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

Estimated Traffic Volume (number, type of vehicles)

The transport of hazardous wastes will be within the BGCAPP facility or north on the access road to KY Highway 52 (see Figure B-8) for offsite transport. During BGCAPP facility operations, it is estimated that approximately an additional 250 privately owned vehicles would enter and leave from the Main Plant site each workday during the day shift. This includes ~125 personnel working within the facility and an additional ~125 comprised of government, management, administrative and off-site transient personnel on any given day. There will be approximately 125 POVs entering and leaving the site during the second shift, but the day shift value is being used for maximum expected capacity. Incoming shipment of materials, products and supplies will result in an additional ~5 commercial vehicles incoming and outgoing as well. There will be several shipments of scrap metal and waste materials from the BGCAPP 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. Information pertaining to the number of shipments and associated traffic expected can be found in Table B-1.

Traffic Pattern

The major highways serving the BGCAPP facility are Interstate 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 3-foot wide shoulders. Where guardrails exist, the road is 24-foot wide with 6-foot wide shoulders. BGCAPP facility personnel vehicles and other authorized vehicles use this road to access the BGCAPP site. Vehicles traveling to the container storage facility (CSF) will exit BGCAPP via Depot Secure access point at BGAD gate D2 located at the southern end of the BGCAPP boundary, they will travel Depot roads to the CSF approaching the facility from a easterly direction. Departing vehicles will reverse this route and return to the BGCAPP via Gate D2. Subcontractor vehicles intended for offsite waste shipment will depart the BGCAPP site via the access road to route 52. The outward movement of all hazardous wastes will be to KY Highway 52. This access supports operations at the BGCAPP Main Plant, SDC1200, SDC2000 and the CSF. The road enters at the mid-northern boundary of the BGAD.

Figure B-8 shows the traffic pattern for BGCAPP facility hazardous wastes, materials, and personnel. BGCAPP facility hazardous wastes will be transported from the facility to KY Highway 52 for offsite transport to appropriately permitted, commercial treatment, storage, and disposal facilities (TSDFs).

Traffic Control Signals

Several methods and signals control traffic on BGAD and at/around the BGCAPP facility:

a. All major road intersections have traffic control gates and stop signs.
b. All secondary road intersections have stop signs or yield signs.
c. Speed limits are well posted.

d. 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.
e. The Restricted Area through which personnel and vehicles enter the BGCAPP Main Plant is an area with guards controlling access.
f. 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 BGCAPP facility during chemical agent handling and destruction.

Access Road(s) Surfacing and Load-bearing Capacity

The main access road to the BGCAPP facility is, in general, flat terrain with Class E roads. The construction of the access road meets the technical requirements set by the Department of the Army Corps of Engineers. The roads are 24-feet wide with a minimum cross-slope of 2 percent and 3-foot wide gravel shoulders, except where there are guardrails and the shoulders are 6-foot wide 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 the BGCAPP facility control traffic and entry into the munitions processing area. Personal vehicles are not allowed within the Restricted Area or CLA. Government vehicles that transport BGCAPP facility personnel are parked in designated parking lots, and do not interfere with traffic flow within the fenced facility.

B-5: Requirements for Applicants for Construction Permits [401 KAR 38:090, Section 2(18) and KRS 224.46 520(1)]

The BGCAPP facility is in its Closure phase as a TSDF.

B-5a: Alternative Analysis Plan

Not applicable.

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

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

B-6: Applicants Other than Interim Status – Past Compliance Record and Other Documents [401 KAR 38:090, Section 2(19)]

The BGCAPP facility has not received any civil fines or significant deficiencies on environmental compliance inspections. Since the BPBG Team is a joint venture (JV) contracted to operate the BGCAPP Main Plant, these disclosure forms, key personnel statement forms, and disclosure statements are provided in the front of this Permit Renewal Request.

B-7: Financial Responsibility to Construct and Operate [401 KAR 38:090, Section 2(24), KRS 224.40-325 & 40 CFR 270.14(b)(18), 264.145, 264.147, and 264.150]

The BPBG Team is the organization contracted to design, construct, and operate the BGCAPP facility for the Government owner. The design, construction, and operation of the BGCAPP facility is 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 Kentucky Revised Statute (KRS) 224.40-110.

B-8: Public Participation [401 KAR 38:050, Sections 14 and 38:090, Section 2(25) & 40 CFR 124.31]

A public meeting will be scheduled to introduce and explain this permit renewal request (i.e., for RCRA permitted storage at the WTS and CSF at BGCAPP).

B-9: Fees [401 KAR 39:090, Sections 2 and 3, 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 Permit Revision. No additional monies are required.

Table B-1: Estimated Traffic and Waste Shipments

Waste/Material Type	Loads per Day	Days per Week	Loads per Week	Estimated Loads per Month
Roll Off	13	7.0	85	340
Drummed Waste	0.14	7.0	1	4
Municipal Solid Waste (MSW)	0.25	7.0	2	8
Scrap Recycling	13	7.0	85	340
Personally Owned Vehicles (POVs)				250 POVs max per Shift

Notes:

1) Average number of shipments is estimated, based on current facility closure and planning data. These values are subject to change and should not be set as permit operating limits/conditions.

Figure B-1: BGAD Location

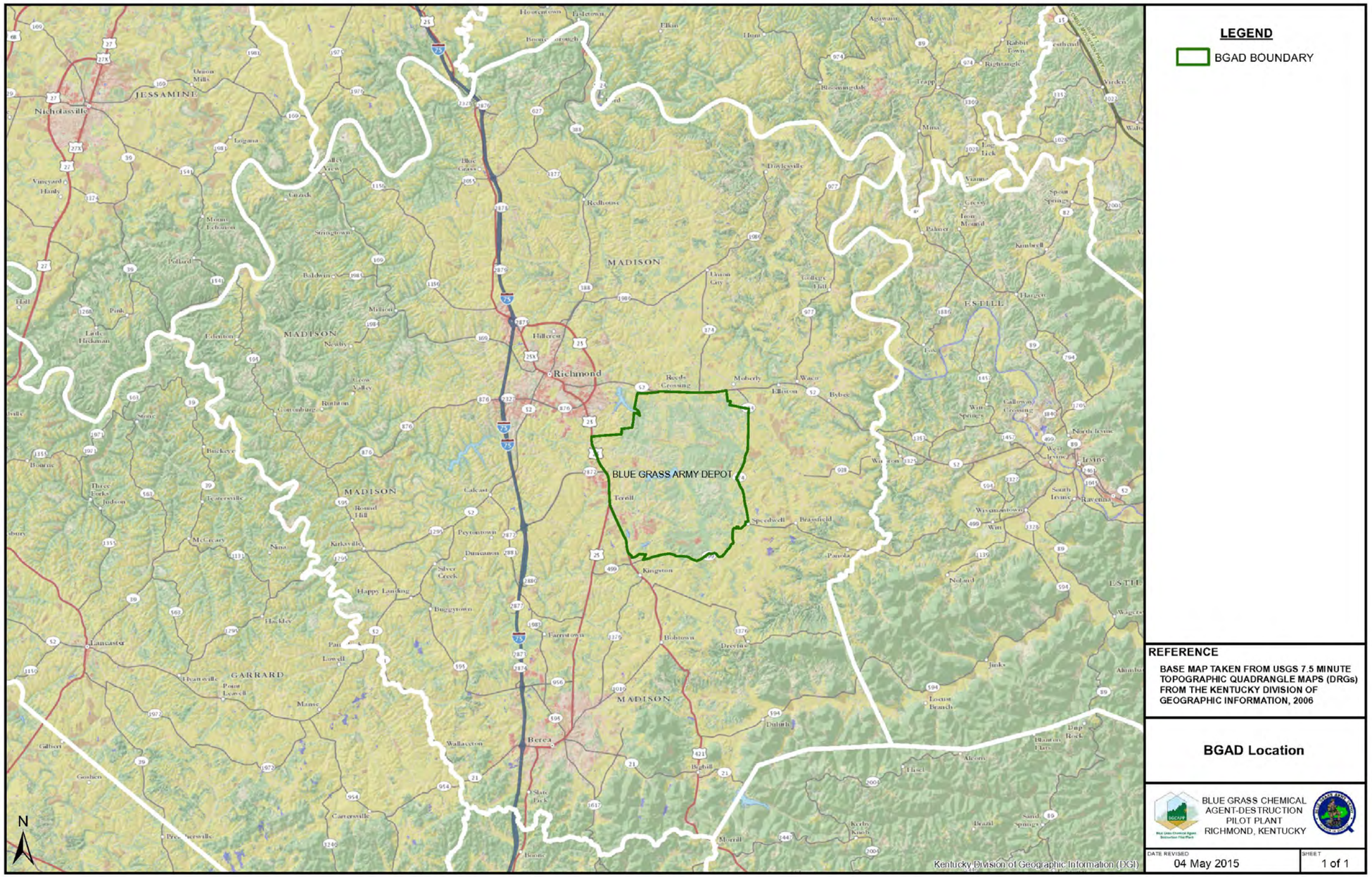


Figure B-2: BGCAPP Facility Location and Surrounding Land Use

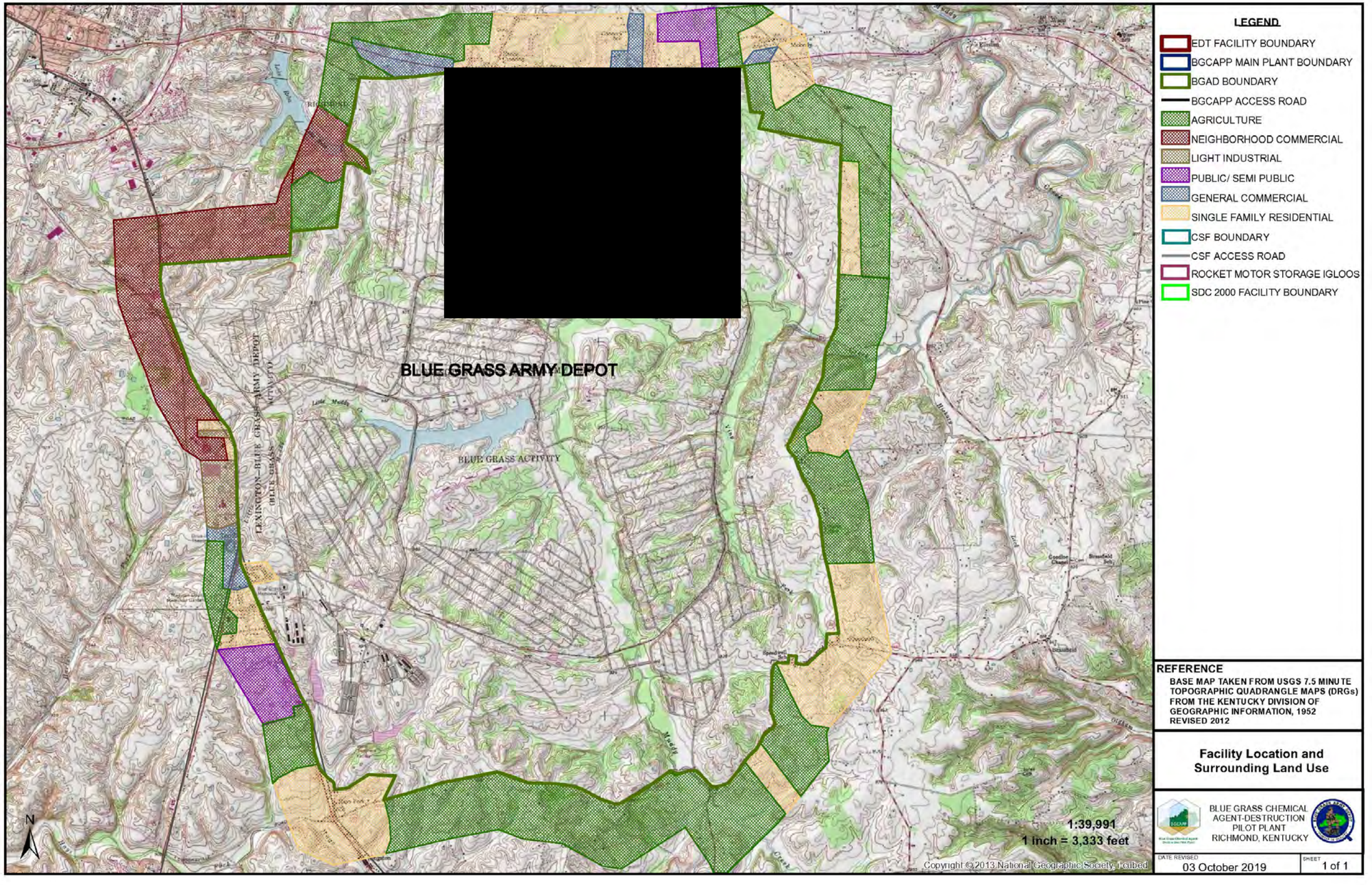


Figure B-3: Facility and Flood Zone

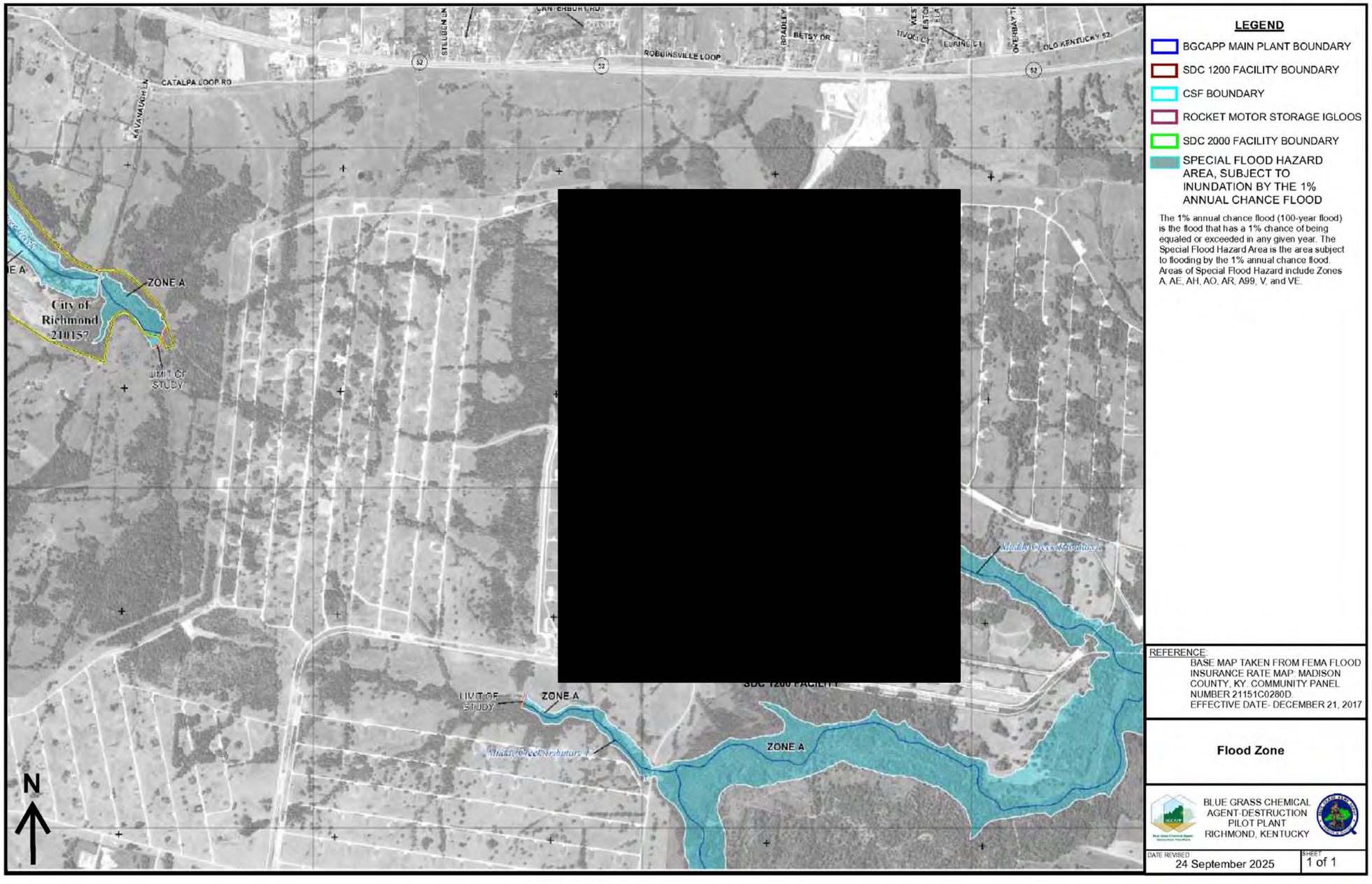


Figure B-4: Facility Wind Rose

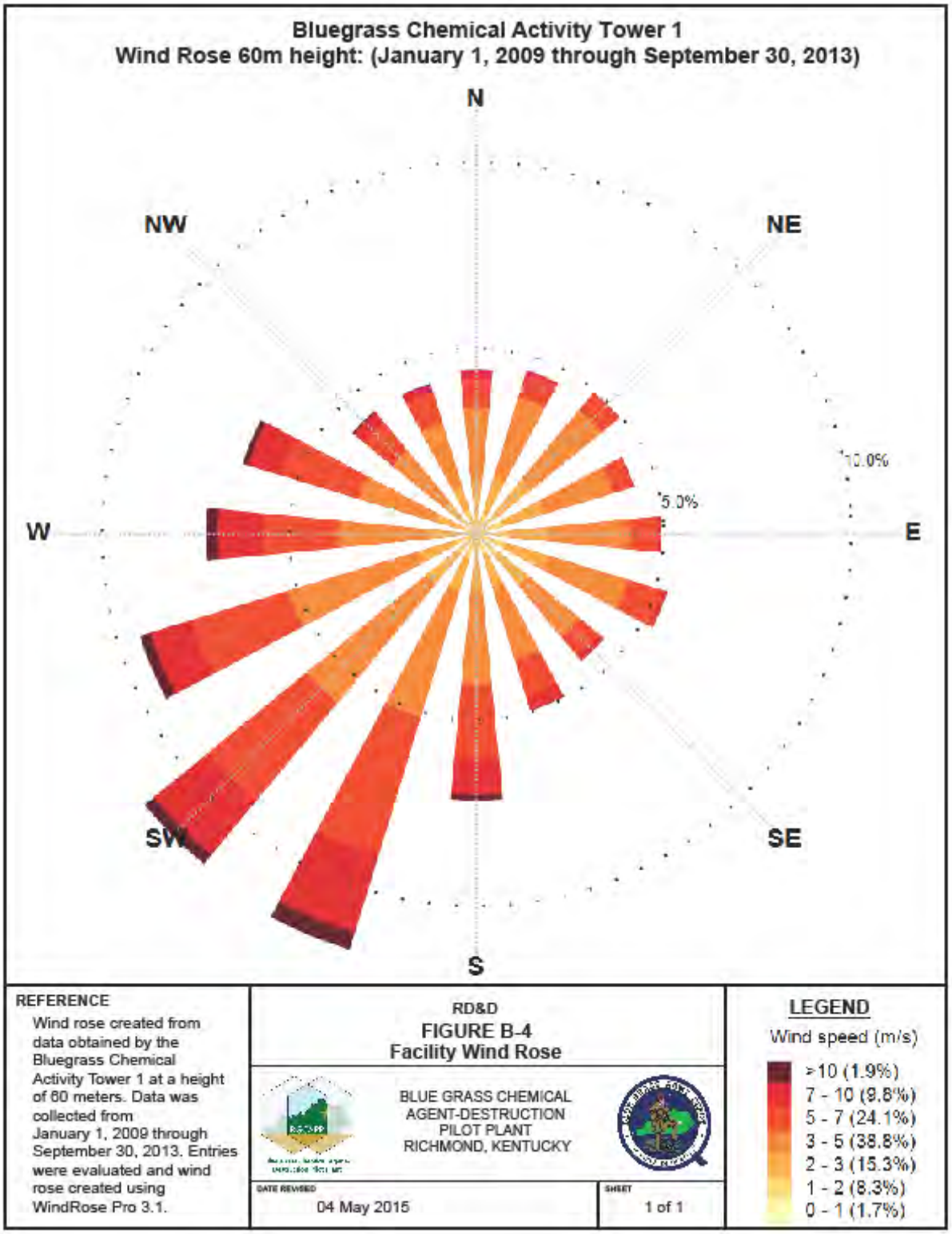


Figure B-5: Facility Layout

Figure B-6: Geology Surrounding Facility

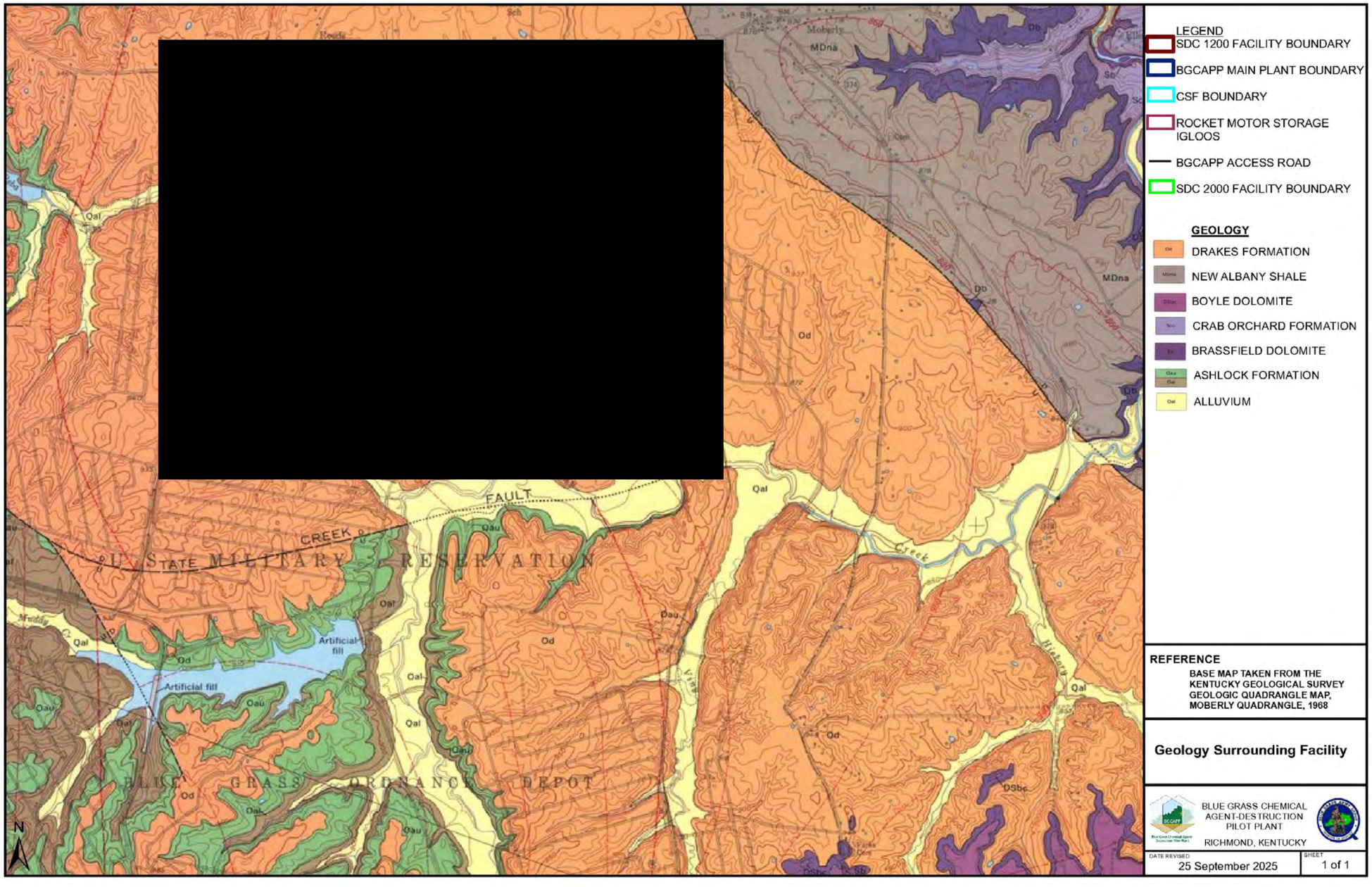


Figure B-7: Soil Types

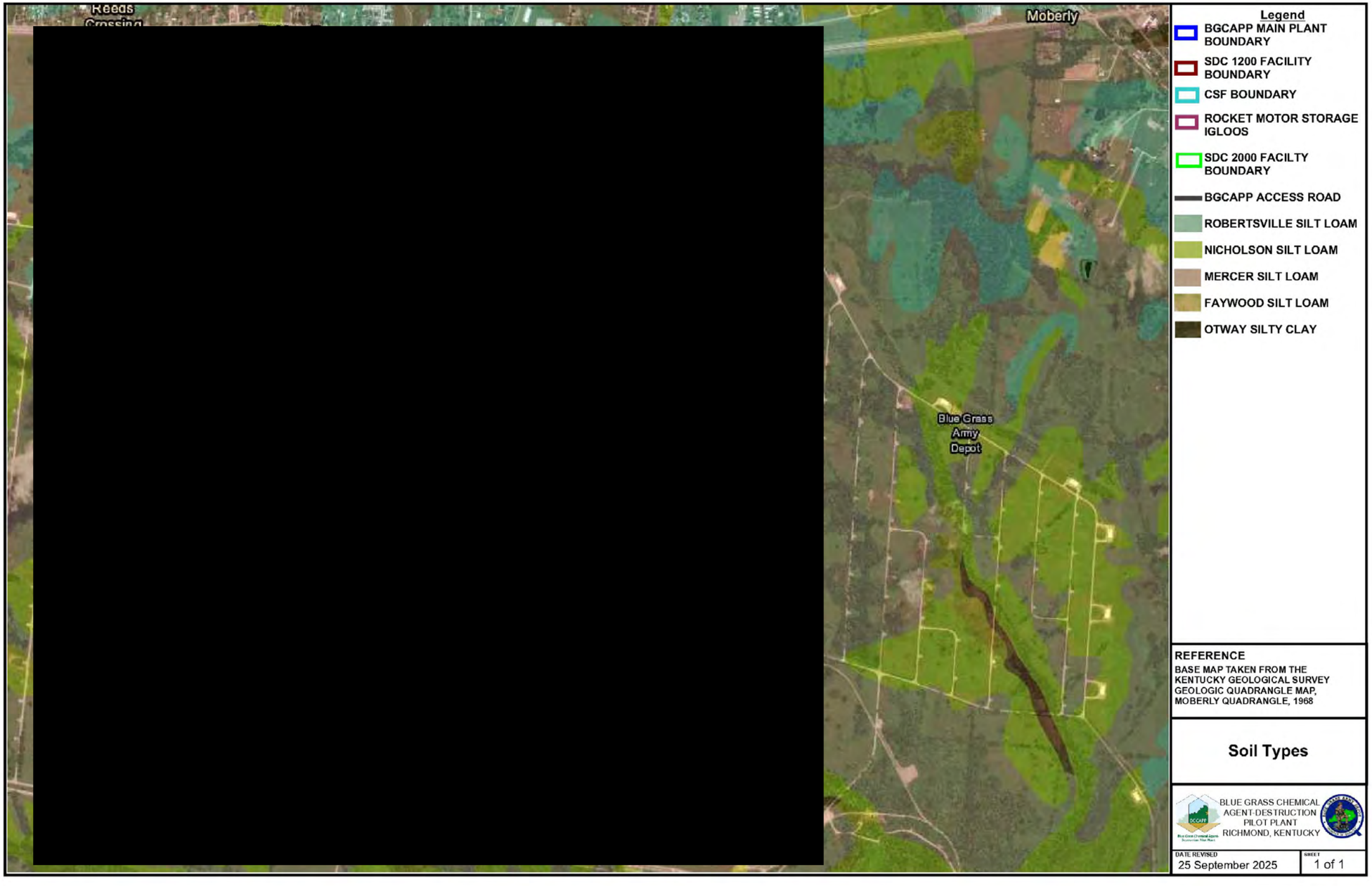
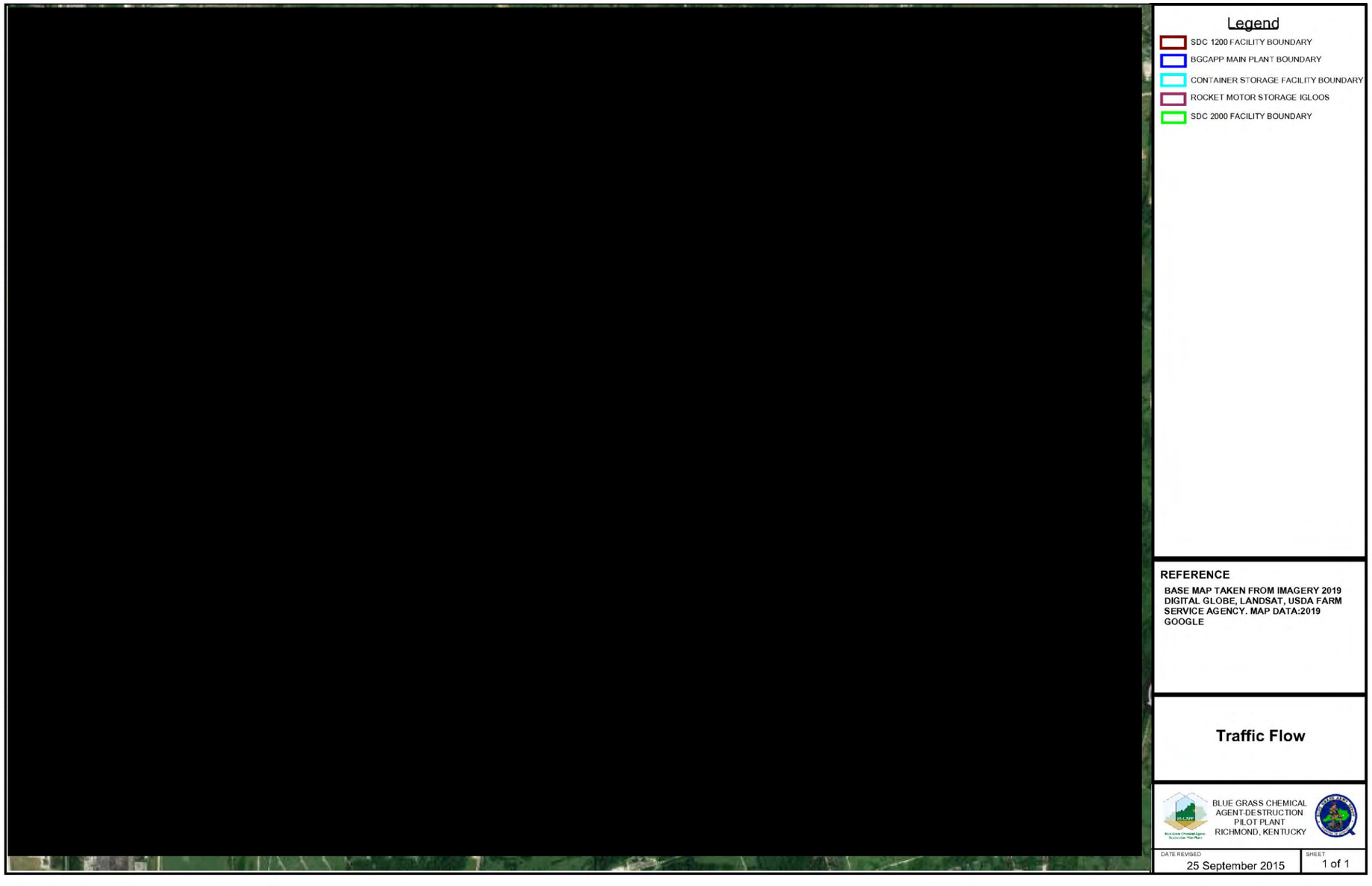


Figure B-8: Traffic Flow



Part C: Waste Analysis Plan
[401 KAR 38:090, Section 2(3), 34:020, Section 4 & 40 CFR 270.14(b)(3) and 264.13]

See Volume II.

Part D: Process Information: General [401 KAR 34:180, 34:190, 34:250, 38:150, 38:160, & 38:230 & 40 CFR 264.170-179, 264.190-200, 264.600-603, 270.15, 270.16, 270.23]

D-1 Process Information: Description and Overview of Facilities

Three types of waste storage and treatment units, containers, tanks, and miscellaneous (Subpart X) units, were constructed and used within BGCAPP. BGCAPP is in closure, this renewal application includes Part A which reflects the status of these units. Currently all but two of the BGCAPP Main Plant permitted units are inactive. The remaining active units as of this renewal are Subpart I container storage units, WTS and CSF.

Part C Waste Analysis Plan, provides information on the composition of the chemical agents GB and VX present in wastes stored in the WTS and CSF container storage units.

Information related to inactive and clean closed units is included for reference and clarity of understanding systems and unit operation: An overall description of the BGCAPP treatment processes is provided below along with descriptions of the individual buildings and areas that will be used to store or treat hazardous waste. Also, detailed descriptions of the waste storage and treatment units used at the BGCAPP facility are provided in sections as indicated below:

D-2: Process Information: Containers [401 KAR 34:180 and 38:150 & 40 CFR 264.170–179 and 270.15]

D-3: Process Information: Tank Systems [401 KAR 38:160 and 34:190 & 40 CFR 264.192 and 264.190 and 270.16]

D-9: Miscellaneous Units [401 KAR 38:230 and 34:250, Section 2 & 40 CFR 270.23 and 264.601].

D-1a Overall Process Description and Process Flow Diagram

The BGCAPP design utilized neutralization technologies that have been successfully individually demonstrated for the Program Executive Office – Assembled Chemical Weapons Alternatives (PEO ACWA) into an integrated plant for testing during the RD&D program. Detailed information for each component of the system is provided in sections D-2, D-3, and D-9. An overview of the process is provided below.

D-1a(1) Overview of Process

Chemical demilitarization of the BGAD stockpile via Main Plant operations is complete.

The BGCAPP Main Plant integrated systems used to safely destroy the agent and energetics are all inactive, the process descriptions of inactive units are included with the application for reference only:

1. Agent and energetics access (mechanical).
2. Agent removal and neutralization by hydrolysis.
3. Energetics removal and deactivation by hydrolysis.

4. Metal and other solids decontamination (decon) by heating to a minimum of 1000°F for 15 minutes in the inductively heated MPTs.
5. Dissolved aluminum removal by precipitation and filtration.
6. Agent/energetic hydrolysates post-treatment using commercial-scale, solid-wall SCWO units.
7. SCWO process effluent concentration by RO, followed by off-site disposal of the concentrate and recycle of the RO product for use as quench water in the SCWO process.
8. MPT, agent neutralization reactor (ANR), and energetics batch hydrolyzer (EBH)/energetics neutralization reactor (ENR) systems off-gas treatment in a thermal oxidizer (TOX) and associated ancillary equipment (cyclone, scrubber, filters) operated under a Title V air permit. The EBH is a large steam-heated inclined drum similar in shape to a traditional cement mixer.
9. Fugitive agent vapor emissions collection and treatment using the MDB heating, ventilation, and air-conditioning (HVAC) system and off-gas treatment system that incorporates particulate and carbon filtration.

The block flow diagram (24915-00-M5-00-00001) provides an overview of the BGCAPP process. This process will achieve the required 99.9999 percent (as a minimum) destruction and removal efficiency (DRE) of GB agent stored at the BGAD. Part A lists the treatment processes and waste storage areas used to support meeting the DRE and disposal of process and secondary wastes generated during treatment of GB. Each of these units and storage areas were sized to support processing rates identified in *BGCAPP Throughput and Availability Analysis* (2015).

D-1a(2) Movement of Munitions to BGCAPP Facility

This section is included as reference for closure: To initiate the treatment process, munitions will be moved to the BGCAPP facility. The palletized munitions are stored in HWSUs and are currently regulated under the BGAD hazardous waste storage permit. The location of each type of munition is well documented and specific munition types can be located easily and transferred with minimum disturbance of the overall stockpile of munitions. Munitions will be transported in EONCs from the HWSUs to the CHB.

The EONCs are airtight vessels that are specifically designed to contain munitions during transport from the BGAD HWSUs to the CHB. The EONC is a well-established design that has been used safely at the following facilities:

- Tooele Chemical Agent Disposal Facility (TOCDF)
- Anniston Chemical Agent Disposal Facility (ANCDF)
- Umatilla Chemical Agent Disposal Facility (UMCDF)
- Pine Bluff Chemical Agent Disposal Facility (PBCDF).

Each EONC will be received in the CHB where it will be stored until its contents are to be treated, at which point it will be transferred to the UPA, and the air in the sealed EONC will be monitored for agent.

If agent monitoring indicates the EONC does not contain leaking munitions, the EONC will be opened, and the munitions will be transferred to the appropriate conveyor line for treatment of that munition type (projectile or rocket).

If agent monitoring indicates the EONC contains leaking munitions, the EONC will be moved to an area that is under a higher level of engineering control (i.e., sealed area under negative [less than ambient atmospheric] air pressure) where it will be opened and the munitions processed by personnel wearing appropriate personal protective equipment (PPE), with munitions placement on the appropriate processing conveyor line. Contaminated metal straps used to hold leaking munitions in place will be transferred to the MPT for treatment, and contaminated wood pallets may either be treated on site by chemical decontamination or treated in the MPT and then shipped off site to a permitted TSDF. The EONC will be decontaminated and released for further use.

D-1a(3) Demilitarization Operations

This section is included as reference for closure: Demilitarization treatment operations on the projectiles and rockets will be performed using remote-control systems in the MDB. The demilitarization of munitions will result in the following components for treatment:

1. Liquid agent and agent-contaminated wash water.
2. Agent-contaminated wood/fiberglass/cardboard.
3. Agent-contaminated metal.
4. Explosive components (e.g., bursters, propellant, and fuzes).
5. Rocket motors (RMs) and contaminated rocket motors (CRMs).

D-1a(4) Treatment Sequence

This section is included as reference for closure: The specific treatment sequences for each type of munition and the operation of each unit within the MDB for treatment of these components will be:

1. Disassemble the munitions.
2. Drain the agent from the agent cavities.
3. Neutralize the agent (GB) by hydrolysis in hot caustic to an agent compliance limit that satisfies 99.9999 percent DRE.
4. Place the separated warheads into canisters for transfer to storage and destruction at SDC 1200 and SDC2000 facilities.
5. Place the separated RMs in containers for transport to storage, treatment, recycling, or disposal.
6. Treat the agent-contaminated dunnage and most other agent-contaminated ancillary wastes either by thermal treatment in the MPT or by chemical decontamination. Chemical decontamination is the first choice for wood, PPE, other plastic/rubber wastes, and other organic materials. These materials will be decontaminated using sodium hydroxide (NaOH), sodium hypochlorite (NaOCl), or other appropriate decontamination solution to the appropriate Vapor Screening Level (VSL). Wastes that have been tested to meet these VSLs will be shipped offsite to a permitted TSDF.
7. Ship spent activated carbon generated from the HVAC system off-site for further treatment at a permitted TSDF.
8. Thermally treat agent-contaminated metal parts and other agent-contaminated wastes in the MPT.

Agent hydrolysis involve mixing the agent (GB and VX), agent-contaminated liquid hot caustic solution (e.g., NaOH). After treatment, agent hydrolysates will be analyzed for residual agent concentration. If the agent concentrations are above the target compliance limits, additional treatment will be required. If the agent concentrations are below the target compliance limits, the batches of agent hydrolysate will be transferred to the hydrolysate storage area (HSA) and finally to the SPB for further treatment.

Treatment of agent-contaminated waste items (e.g., metal parts, dunnage) in the MDB will consist of heating the waste in the MPT to a minimum of 1000°F for a minimum of 15 minutes to destroy residual agent and energetics, if present. The Department of the Army treatment standard for agent destruction is achieved by this treatment process and, following this treatment, the wastes may be sent offsite either for disposal or for recycling (i.e., this thermal treatment meets the Department of the Army requirement for release to the public). As an alternative to the MPT, certain ancillary (secondary) wastes may be decontaminated with NaOH, NaOCl, or other appropriate decontamination solutions in the MDB. These wastes, along with PPE, and other plastic/rubber items, will be shipped off-site to a permitted TSDF. If decontamination to the appropriate VSL cannot be achieved, these wastes will be treated in the MPT before being shipped off-site for treatment or disposal in a permitted TSDF.

Agent monitoring will be performed at the facility boundary to the General Population Limit (GPL) in accordance with the Title V air permit.

D-1a(5) Waste Generation

This section is included as reference for closure: To the maximum extent possible, process liquid streams will be recycled to conserve water and to prevent discharge to ground or surface water. Water will be recycled via a water recovery system that produces water of a quality suitable for recycling back into the process during the pilot testing and operations phases.

D-1a(6) Facility Control Logic

This section is included as reference for closure: Facility control logic is used throughout BGCAPP in several processes, and is best described via an example of how control logic applies to the overall management of MPT Condensate (MPTC).

One of the goals is to use all the MPTC directly in the process to minimize use of process water, and reduce hazardous waste production. A significant design change referred to as ECP-025 was developed to provide more flexibility in the distribution and management of the MPTC. The summary provisions were to provide some storage capability in one of the empty Agent Hydrolysate Tanks, and distribute the MPTC to process systems as needed to optimize (i.e., minimize) water usage. The MPTC is now piped for potential distribution to the Agent Neutralization Reactors (ANRs) via Tank SDS-0301 in the MDB.

The methodology and control logic associated with this process is currently under development and will be modified as necessary before the facility water balance is optimized. The objective is to use essentially all the MPTC to replace process water throughout the facility which supports both water balance optimization and waste minimization.

D-1a(7) Secondary Waste Shipment

For historical reference only – no additional waste will be generated in Main Plant that would be required to be shipped under the BTRA.

Small amounts of contaminated carbon and other secondary waste is still being generated and containerized at the SDC 1200 and 2000 facilities that will be shipped under the BTRA.

Secondary wastes from Main Plant and SDC2000 and SDC1200 closure are not process wastes but are instead agent-derived wastes (e.g., due to contact with liquid agent or agent-contaminated liquids or aerosols) that are generated during maintenance, operations, and closure activities. The U.S. Army Chemical Materials Activity has implemented a secondary waste management policy in which secondary wastes can be treated and disposed off-site at an appropriately permitted, commercial TSDF. The Chemical Materials Activity "Bounding Transportation Risk Assessment for >1 VSL Waste" (BTRA), September 2008, defines the conditions under which ≥1 VSL agent-contaminated secondary waste can be shipped to an appropriately permitted, commercial TSDF (i. e., incinerator) with various levels of risk (i.e., negligible and marginal); it is included in Volume II. The BTRA was prepared to identify and assess the potential risks to members of the public due to accidents during transport of hazardous waste, and is provided in
Volume II. The levels of risk in the BTRA are based upon:

1. Average headspace readings in a truckload of 55-gallon or 95-gallon containers
2. Number of shipments to be made
3. Distance to an appropriately permitted, commercial TSDF
4. The BTRA includes secondary wastes contaminated with the chemical agents treated at the BGCAPP

The objective of the BTRA was to provide a framework for assessing and controlling risks to TSDF workers and the public arising from ≥1 VSL waste shipments. The BTRA applies to secondary wastes or closure wastes leaving a chemical demilitarization facility and creates continuity and consistency in the risk criteria applied to secondary waste shipments. The bounding conditions determine the level of public risk based on:

1. Agent concentrations and/or agent quantity per drum
2. Distance and number of shipments during the shipment operation

An "Information Package" is prepared prior to U.S. Army approval of offsite shipment of secondary waste [e.g., waste profile, monitoring plans and standing operating procedures (SOPs), waste segregation and packaging SOPs, transportation plans, health and safety approach].

The headspace monitoring used to meet U.S. Army requirements for characterizing agent-derived, secondary wastes to determine how the wastes with >1 Vapor Screening Level (VSL) can be transported off-site is described in Appendix C-1 (Waste Analysis Plan).

Off-site shipments of secondary wastes must comply with DOT regulations found in 49 CFR 100-185. The demilitarization facility is required to:

1. Package, in 55-gallon or 95-gallon polyethylene drums, secondary wastes with headspace monitoring results ≥1 VSL. Use polyethylene drums as waste containers for direct feed into an appropriately permitted, commercial TSDF incinerator. Direct waste feed prevents additional TSDF worker exposure
2. Allow a maximum of eighty 55-gallon or fifty-one 95-gallon drums per vehicle (as defined in the BTRA)

3. Palletize and shrink wrap waste drums and place the palletized drums into the cargo area without stacking the pallets
4. Ensure the cargo areas for shipments are climate controlled (i.e., <70°F)

Additional shipping requirements are included in the BTRA. The BTRA indicates that relatively high agent concentrations in individual drums result in negligible risks; however, the Chemical Materials Activity accepted and implemented a CDC recommendation not to exceed a ceiling headspace monitoring value for any waste container within a waste shipment. The ceiling concentration for GB as 500 VSL, where 1 VSL is equal to a GB vapor concentration of 1×10^{-4} mg/m^3.

D-1b Overview of the BGCAPP Facilities

Facilities at BGCAPP that manage or contain hazardous wastes subject to RCRA regulation by KDEP will consist of pre-engineered metal buildings, modular buildings, and field-fabricated buildings and areas. These are described in sections D-1b(1) through D-1b(9).

D-1b(1) Container Handling Building (CHB)

The CHB information is included as reference for closure, it is a pre-engineered metal building to be used to store munitions received from chemical storage HWSUs. The CHB will receive EONCs that contain the munitions.

D-1b(2) Munitions Demilitarization Building (MDB)

All subpart J and subpart X units are inactive, information is included as reference for closure: The MDB consists of a pre-engineered building shell with an inner, field-fabricated, reinforced concrete building that contains explosive containment rooms (ECRs). Major equipment in the MDB includes the nose closure removal station (NCRS), projectile and rocket munition drainage stations, munitions washout systems (MWSs), Rocket Non-Destructive Examination (RNDE), Vertical Rocket Cutting Machine (VRCM), the agent collection system (ACS), the ANR system, Crimp Station (CS), MPTs, off-gas treatment units (OTE and OTM), and miscellaneous material handling systems and components (e.g., conveyors). The building includes blast gates and doors as well as an HVAC system designed to maintain negative pressure in contaminated areas, as discussed in section D-1b(3). The MDB will have sufficient secondary containment volume for all container and tank systems, miscellaneous treatment units, and ancillary equipment managing liquids.

D-1b(3) MDB Cascade HVAC System

The MDB Cascade HVAC System is shut down and inactive, information is included as reference for closure: The MDB HVAC system is designed with “cascade pressure control” to maintain negative pressure within the MDB while providing heating and air conditioning for toxic and nontoxic areas; it is operated under the BGCAPP Title V air permit as an air pollution control system. The cascade HVAC system will serve a fourfold purpose:

1. Maintain a negative pressure environment in the MDB
2. Maintain the flow of air from areas of low contamination probability to areas of higher contamination probability
3. Remove any agent present in the air flow from the MDB and its systems prior to discharge to the atmosphere after the air streams have passed through other air pollution control systems, including the off-gas treatment for the MPT (OTM) and the EBH (OTE)
4. Provide for human comfort

The amount of air exhausted from or supplied to a room will be higher in areas likely to be contaminated. This will minimize the spread of contamination and maintain the toxic boundaries.

Air flow will be controlled by modulating the supply air, by modulating the flow of exhaust air, and by setting dampers throughout the building.

Each room in the MDB will have a designated category rating (i.e., A, B, C, D, or E) based on the potential for agent contamination, as follows:

1. Category A – Routinely contaminated by either agent liquid or vapor
2. Category B – High probability of agent vapor contamination resulting from routine operations
3. Category C – Low probability of agent vapor contamination
4. Category D – Not expected to be contaminated by agent
5. Category E – Maintained at positive atmospheric pressure at all times to prevent contamination by agent (e.g., the central control room [CCR] will be maintained at a positive atmospheric pressure because it will remain occupied even if an emergency were to occur)

Only rooms with Category A, Category B, or Category C ratings will be maintained under continuous negative pressure by the HVAC system. All process components that involve agent or agent-contaminated materials will be contained in the MDB, which will be vented to a series of filters that process all air drawn by the HVAC system. The HVAC system will control all contaminants that might be released from the process, whether as a point source or as a fugitive emission.

The minimum negative pressures required to maintain Category A, B and C areas under engineering controls are as follows:

1. Category C Areas: -0.25” to -1.0” water gauge (wg)
2. Category B Areas: -0.5” to -1.5” wg
3. Category A Areas: -1.25” to -3.25” wg

Filter units to which all exhaust air will flow from the MDB will consist of the following:

1. A row of pre-filters, which removes the larger particulate matter
2. A row of HEPA filters, which removes very fine particulate matter
3. Six rows of carbon filters, which remove agent and other gaseous contaminants, including organic vapors
4. A final row of HEPA filters, which captures any particulate that may be released from the carbon filters

D-1b(4) Hydrolysate Storage Tanks and Tank Area

Hydrolysate Storage Area units are inactive, information is included as reference for closure: The hydrolysate storage tanks and tank area (HSA) will consist of large carbon steel tanks and liquid transfer equipment (pumps and ancillary piping systems) for the agent hydrolysate and energetics hydrolysate from the MDB; these will serve as buffer storage for processing hydrolysate feeds to the SPB. The HSTs and tank area will have sufficient secondary containment volume for all tank systems managing liquids. The hydrolysates’ vapor pressures are very low. However, as a precaution and to control possible vapors, the hydrolysate tanks are vented to activated carbon adsorbers.

D-1b(5) SCWO Processing Building (SPB)

The SPB was never activated, information is included for closure reference only: The SPB consists of a pre-engineered building containing chemical storage tanks, APS, AFS, SCWO units, RO system, recycled water storage, and STA and storage tanks. The SPB will have sufficient

secondary containment volume for all of its container and tank systems, miscellaneous treatment units, and ancillary equipment managing liquids.

D-1b(6) Waste Transfer Station (WTS)

The WTS consists of field-fabricated container storage buildings, a tanker parking and storage pad for bulk liquids and a concrete pad used to store roll-off boxes for bulk solids. These areas will be used for staging wastes generated in the BGCAPP prior to offsite shipment to final treatment and disposal facilities. The WTS will have approximately 279,000 gallon storage capacity for process and secondary wastes.

Container storage buildings, portable containment pallets and hazardous material storage lockers will be utilized for storage of wastes in drums and smaller containers. These buildings, pallets and lockers will be located on concrete pads but will provide their own secondary containment. Wastes stored in these buildings, pallets and lockers will not exceed 24,000 gallons in capacity.

The tanker storage area for bulk liquid wastes will have a capacity of 120,000 gallons, which is equivalent to twenty-four 5,000 gallon tankers. This area is being built as three separate containment areas with eight slots per containment with a 40,000 gallon capacity in each of the three containments. Secondary containment for liquid wastes has been sized in accordance with regulatory and project requirements.

The roll-off storage area for bulk solid wastes will have a capacity of 135,000 gallons, which stores 20 and 40 cubic yard roll-off boxes. Secondary containment for non-liquid waste was constructed in accordance with regulatory and project requirements.

D-1b(7) The Container Storage Facility (CSF)

This CSF is located on BGAD approximately 500 yards west of gate D10W on the south side of the road. The storage facility is an existing structure on BGAD identified as Building 110FF. It is steel framed metal clad structure 50 feet by 100 feet, see Appendix D-1 for details. The CSF receives and stores hazardous and secondary waste generated from the operations of the BGCAPP Main Plant, SDC2000 and SDC1200 facilities. The CSF will facilitate management of these wastes for shipment to an offsite TSDF for final disposal. These wastes will include Commonwealth of Kentucky listed waste from processing chemical agents GB, VX and H (N001, N002, N003, N101, N102, N201, N202, N203, N301, N302, N401, N402, N501, N502, N601, N602, N701, N702, N703, N801, N802, N901, N902, N1001, N002). These listed wastes are codified by 401 KAR 39:060, Lists of hazardous waste, Section 3 – Table I. In addition, processing of these chemical agents and other maintenance activities may produce other hazardous wastes (e.g., Waste Numbers: D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019 D022, D024, D026, D027, D028, D029, D030, D035, D037, D038, D039, D040, F001–F005), and laboratory and maintenance activities may also add other wastes (e.g., Waste Numbers: P098, P106, U002, U003, U044, U080, U154, U188, U196, U213).

D-1b(8) Other Buildings and Structures

The BGCAPP facility includes other support buildings and structures as necessary (e.g., Access Control Building) that will not be used to contain or treat hazardous waste.

In addition, the BGCAPP laboratory facility is a research, development, test and evaluation laboratory consisting of a prefabricated building. This building includes 14 lab fume hoods which have inline carbon filtration. Current drawings showing air flow in the facility, roof plan, control diagrams, duct heaters, HVAC controls and network layout and wiring have been provided to KDEP for information.

D-1b(9) Plant Systems and Subsystems not Containing Hazardous Waste Management Units

The BGCAPP facility includes support systems as necessary (e.g., plant air) that will not contain hazardous wastes.

D-2 Process Information: Containers [401 KAR 34:180 and 38:150 & 40 CFR 264.170–179 and 270.15]

Appendix C-1 of this Permit Application lists and describes the types and characteristics of hazardous wastes stored in containers at this facility. Appendix D1 provides a summary of container storage areas.

D-2a Container Management [401 KAR 34:180 and 38:150 & 40 CFR 264.170–179 and 270.15]

BGCAPP will comply with the applicable requirements of KRS 224 and 401 KAR, and with the BGCAPP Permit. Regulated units within BGCAPP will be managed in accordance with 401 KAR Chapter 34 "Standards for Owners and Operators of Hazardous Waste Storage, Treatment and Disposal Facilities."

Hazardous waste container types that will be managed at BGCAPP, and the hazardous waste storage areas—with the waste types stored in each, are described below.

D-2a(1) Hazardous Waste Containers

Several different containers will be used to manage, store, and transport hazardous wastes within BGCAPP, in addition to the munitions themselves. Several of these containers are described below, but this listing is not all-inclusive. As additional types of containers are identified, they will be incorporated into BGCAPP procedures in compliance with 401 KAR 34:180 and 401 KAR 38:150. Only compatible wastes will be containerized together.

D-2a(1)(a) Single Round Container (SRC)

NA – No longer in use. Information is included as reference for closure:M55 rockets that have been found to be leaking are containerized in an SRC. The SRC was specifically developed to contain the M55 in a substantial steel shell, which has been subjected to a helium leak test as part of the acceptance process. Leaking M55 rockets, which were containerized before the development of the SRC, are stored in a modified M-1 container. The modified M-1 is a heavy steel cylinder bolted on with a gasket seal with eight bolts.

D-2a(1)(b) M16 Series Overpack Container

NA – No longer in use. Information is included as reference for closure: The M16 series containers are cylindrical steel containers designed to be airtight and designated for the over-pack of projectiles. Overpacked 155-mm projectiles are stored in wooden "egg crates" specifically designed to store the M16 overpack container.

D-2a(1)(c) M10 Series Overpack Container

NA – N longer in use. Information is included as reference for closure: The M10 series container is a cylindrical steel container that is designed to be airtight and is designated for use as an overpack container for leaking or deteriorated M16 containers and as an overpack container for 8-inch projectiles.

D-2a(1)(d) Enhanced Onsite Container (EONC)

NA – Closed, no longer in use. Information is included as reference for closure: The Department of the Army uses EONCs to store and transport the munitions and bulk containers for the time period immediately preceding demilitarization activities. The EONC is designed to provide vapor-tight containment of agent; all seals on the containers are impervious to agent and are able to withstand decontamination solutions; air monitoring can be performed on the headspace within the EONCs. The EONC will provide secondary containment for the munitions or containers stored within. The EONCs are mounted and will be transported to the BGCAPP on a flatbed trailer. Dimensions of an EONC are as follows:

- 141.00 inches in length
- 101.88 inches in width
- 102.00 inches tall

The combined weight of the EONC and munition holding trays will not exceed 26,000 pounds.

D-2a(1)(e) Intermediate Bulk Containers (IBCs) and Bulk Solid Containers

IBCs (e.g., polytanks) may be used throughout the process to collect various liquid waste streams. Each IBC will have a capacity of up to 300 gallons with nominal dimensions of up to 42 by 48 by 41 inches (L×W×H). DOT-approved bulk solid (box) containers (e.g., B-25 boxes) of various sizes may also be used for solids collection, as appropriate. IBCs and bulk solid containers are manufactured from various materials including carbon steel, stainless steel, and polymers. Specifications and certifications for each type of container that is procured will be obtained to document that these meet DOT requirements for the waste contents to be stored.

D-2a(1)(f)°Rocket Motor and SFT Container

NA – no SFTs on site, containers no longer in use. Information is included as reference for closure: Boxes (wooden, metal, or other suitable materials of construction) will be used to store rocket motors and SFTs during monitoring and for shipment of these wastes (see Figure D-1 below). Up to 30 rocket motors or SFTs can be stored in one of these containers. Vertical spacers will be used to provide support for the individual storage of each rocket motor. The box dimensions are as follows:

- 53.00 inches in length
- 40.00 inches in width
- 53.75 inches tall

The palletized box weighs approximately 629 pounds and the 30 M67 rocket motors will weigh approximately 900 pounds giving an approximate total shipping weight of 1,529 pounds.

Rocket motors will be monitored and shipped in this type of container/box. Shipping and Firing Tubes (SFTs) will be loaded and monitored horizontally in the motor packing room / discharge airlock and then either shipped in a box similar to the ones used for rocket motors without the dividers or shipped in a roll-off container. If the latter option is chosen, the SFTs will be monitored in the reusable container (similar to the rocket motor box) prior to transfer to a roll-off box for offsite shipment and disposal.

Figure D-1: Rocket Motor and Shipping and Firing Tube Box

D-2a(1)(g) Other Containers and Compatible Liners

A range of other container types and sizes may be used for storage and transportation at BGCAPP. Table D-1 provides a listing of the container types that may be used. Plastic and other liners compatible with the specific wastes to be containerized will also be used as appropriate. Specifications and certifications for each type of container that is procured will be obtained to document that these meet DOT requirements for the waste contents to be stored.

Table D-1: Commonly Used Hazardous Waste Containers

CAPACITY (gallons)	DESCRIPTION	UNITED NATIONS (UN) MARKINGS
6050	Roll-Off (40 Cuyd)	N/A
6,000	Roll-Off (30 Cuyd)	N/A
5,050	Roll-Off (25 Cuyd)	N/A
4,500	Roll-Off (20 Cuyd)	N/A
350	Fiberboard box	4G
5,050	Self-Standing LiftPac (Roll-Off PacTech Bag)	UN 13H4
350	Self-Standing LiftPac (PacTech Bag)	UN 13H4
350	Open head steel/poly intermediate bulk container	UN 31A/31H1/31H2
110	Open head steel 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 salvage drum	UN 1A2
55	Closed head steel drum	UN 1A1
55	Closed head polyethylene drum	UN1H1
55	Open head steel drum	UN 1A2
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
15	Closed head polyethylene drum	UN 1H1
8	Open head steel pail	UN 1A2
1	Closed head steel pail	UN 1A1
5	Open head steel pail	UN 1A2
5	Plastic jerrican, non-removable head	UN 3H1
5	Open head polyethylene pail	UN 1H2
5	Closed head polyethylene pail	UN 1H1
1	Open head polyethylene pail	UN 1H2

D-2a(2) Container Management Methods

Containers at BGCAPP will be managed in accordance with 401 KAR 38:005, 401 KAR 34:180, and 401 KAR 38:150. Waste shipping containers will meet DOT shipping requirements and will be marked with the appropriate DOT packaging authorization numbers. Storage of hazardous wastes within the facility may occur in IBCs, boxes, and containers. The performance specifications for a specific container will be determined based on the waste characteristics, and wastes will only be stored in compatible containers with compatible liners (as applicable).

Stored wastes will comply with the following general container management standards:

1. If any hazardous waste container leaks, workers will transfer the waste contents into a new container, or the entire leaking container will be over-packed.
2. Appropriate liquid absorbent materials may be added to containers prior to or immediately after placement of wastes in the container.
3. Wastes identified as incompatible will be stored in separate areas. Berms, dikes, walls, or other physical barriers will separate these areas. The same container will not receive incompatible wastes, and workers will clean containers previously holding an incompatible waste or material before using the container for waste storage.
4. Containers of hazardous wastes will remain closed throughout storage, except to add, remove, or characterize wastes.
5. Workers will not open, handle, or store containers in a manner that may rupture the container or otherwise cause it to leak. Pallets will be used to the maximum extent possible to preclude puncture of containers and minimize possible contact with moisture. Only personnel trained to operate the container-moving equipment will move the containers/pallets. Equipment used to move containers may include pallet jacks and forklifts, and other suitable container-transport equipment.
6. Containers will be stacked no more than two high, to maximize the use of space and ensure safe storage of containers.
7. The layout of storage areas will provide sufficient aisle space (minimum of 30 inches) to allow ease of inspection and ensure equipment used to move containers/pallets does not rupture containers. Containers stored within a containment will not contact the containment wall or berm, and will have sufficient space (between the berm or wall and the stored containers) to allow inspection and viewing of the stored containers.
8. BGAD and BPBG policies and procedures forbid smoking within the BGCAPP storage and treatment facilities except in designated areas. Hot work permits preclude open flames, cutting and welding, sparks, and other ignition sources without a permit and any special precautions or requirements. The facility personnel will separate and protect ignitable or reactive hazardous wastes from sources of ignition or possible reaction and radiant heat sources. Containers holding ignitable or reactive wastes will be located more than 15 meters (50 feet) from the BGAD's property boundary.
9. If generator knowledge is insufficient, laboratory analyses and tests will identify incompatible, reactive, and ignitable wastes and materials. Generator knowledge or laboratory results will confirm precautions that can prevent reactions involving ignitable, reactive, and incompatible wastes.
10. Each container in permitted storage will be labeled with the words "Hazardous Waste", a description of the waste stream/waste number, and the date the container was filled. This information will be placed on a label similar to the one included as Figure D-2, Sample Hazardous Waste Label.

11. Weekly (i.e., once between Sunday and Saturday of each week) inspections will be conducted and documented for each of the container storage areas. The inspection will include the elements identified above (i.e., the ten previous elements in this list), but also focus on identifying leaking containers, damage/deterioration of containers, and damage to or leakage/spills within the containment system for each storage area.

Figure D-2: Hazardous Waste Label

Waste will be placed in containers whose materials of construction are compatible with the waste. The selection of a container will be made on a case-by-case basis consistent with generator knowledge of the waste stream. If generator knowledge is insufficient, laboratory analyses and tests will identify incompatible, reactive, and ignitable wastes and materials. Generator knowledge or laboratory results will confirm precautions that can prevent reactions involving ignitable, reactive, and incompatible waste.

All waste containers will always be kept closed during storage except when adding, removing, or characterizing waste. Containers will be handled in a manner to avoid rupturing or leaking. Container handling will be performed with drum dollies, forklifts, overhead cranes, or other means, as appropriate.

Hazardous Waste Container Storage Areas

BGCAPP has two active permitted container storage areas (WTS and CSF). These areas have been designed, constructed, and will be managed in accordance with all applicable standards of 401 KAR 38:005, 401 KAR 34:180, and 401 KAR 38:150. The Part A form summarizes the areas within BGCAPP to be permitted for container storage.

D-2a(2)(a) CHB

The CHB unit is inactive, information is included as reference for closure:

The CHB is a steel-frame building with insulated metal roofing and insulated siding panels. When an EONC brings munitions to the CHB on a flat-bed trailer, they are off-loaded with a side-loader forklift or similar equipment. The side-loader truck will be used to move munitions from the EONCs into the CHB, and also to transfer them to the UPA.

The EONC storage area is sized to store 53 EONCs.

Permitted storage will be limited to the storage of munitions inside of EONCs. The EONC meets secondary-containment requirements of 401 KAR 34:180, Section 6, for the munitions contained within.

The floor of the CHB is constructed of reinforced concrete. The CHB-MDB transition structure is metal siding with a reinforced concrete floor. The number of construction and expansion joints has been kept to a minimum. All joints between floors and walls have been covered and sealed.

D-2a(2)(b) MDB

The MDB and all RCRA permitted units within the structure are inactive, the following information is included as reference for closure:

Waste stored in MDB areas will include both munitions and secondary wastes. The Part A form provides additional waste storage details for each of these areas, including both process and secondary wastes managed in each area. The MDB is the primary treatment facility in the chemical weapons destruction process and includes the following permitted storage areas.

Unpack Areas (UPAs)

Containers and munitions will be brought from the CHB into the MDB via the UPAs. Each UPA is a transition area between the CHB and the hazardous waste processing areas in the MDB. Permitted storage will be limited to the storage of containers inside of EONCs or on secondary containment pallets. The EONC meets secondary containment requirements of 401 KAR 34:180, Section 6, for the munitions contained within. This area will also provide a means to monitor the EONCs for leakers, provide an unpack station, and provide a means to return empty EONCs to the CHB for temporary storage. The floor of each UPA has been constructed of reinforced concrete. The number of construction and expansion joints has been kept to a minimum. In this area, the floor, sumps, and curbs were coated with an applied material that provides a flexible, external liner. There is a 4,800-gallon storage capacity, including both munitions and secondary wastes.

Explosive Containment Vestibules (ECVs)

Munitions will be stored on the conveyors, or on the reject systems in these rooms, as applicable. In addition, leaking or reject projectiles that have been placed in overpacks may be stored on the floor in these rooms. Storage of projectiles or rockets, in or out of EONCs, will not exceed the maximum number allowed as determined by the net explosive weight. There are no plans to store munitions on the floor of the ECV except during the handling of leaker munitions in overpacks that would require entrants to unpack the munitions on the floor prior to placement of those munitions on the demilitarization line. If munitions are placed on the floor, they will be placed in a position that allows for safe passage of entrants, including those in DPE suits. The staging of these munitions will allow for inspections and are not expected to be stored in a manner that would damage the coatings. Should any damage occur, it would be noted during the RCRA required inspections and repaired as required. Secondary containment is provided by a coated, reinforced concrete floor, sumps, and perimeter curbs/walls. The number of construction and expansion joints has been kept to a minimum in these areas. In these areas, the floor, sumps, and curbs have been coated with an applied material that provides a flexible, external liner. There is a 550-gallon (total) storage capacity for secondary wastes in these two ECVs. If necessary, spill-containment pallets also may be used.

Explosive Containment Rooms (ECRs)

Munitions containing explosives, primarily rockets, will be processed in ECRs. In addition, any projectiles identified as containing bursters will also be processed in ECRs, although few (if any) bursters are expected to be present in projectiles. In the event projectiles with bursters are identified, the number of projectiles in an explosive contaminant room at any time will be limited by the explosive force contained in the aggregate projectiles as determined by the net explosive weight. Munitions will be stored on the conveyors, or on the reject systems, in this room as applicable. In addition, leaking projectiles that have been placed in overpacks may be stored on the floor in this room. Secondary containment is provided by a coated and reinforced concrete floor, sumps, and perimeter curbs/walls. The number of construction and expansion joints has been kept to a minimum in this area. In this area, the floor, sumps, and curbs have been coated with an applied material that provides a flexible, external liner. There is a 110-gallon (cumulative total) storage capacity for secondary wastes in these two ECRs. If necessary, spill-containment pallets also may be used.

MWS Reject Table

The MWS Reject Table will provide storage for projectiles that cannot be processed immediately through the MWS system.

In accordance with paragraph 70 of Part IV (A) of the Chemical Weapons Convention Verification Annex, BGCAPP will remove agent samples from randomly selected munitions to confirm agent type. Samples will be taken at the rocket handling system and also at the munitions washout station after the rocket warhead or projectile has been drained of agent. This sampling will occur directly on the rocket handling line for rockets or at the MWS Reject Table for projectiles. The method of sample extraction is expected to be a cotton swab secured to a retractable device.

Tray/Container Transfer Room

Miscellaneous secondary wastes will be stored in this area until it is removed for disposal. Typical containers will include 55-gallon drums, plastic bags, and boxes. There is a 550-gallon storage capacity for secondary wastes in this area.

ANS Storage Area

Miscellaneous secondary wastes will be stored in this room until they are removed for disposal. The room may also be used to store spent decontamination solution on a contingency basis. Typical containers will include IBCs, 55-gallon drums, plastic bags, and boxes. There is a 2,750-gallon storage capacity for secondary wastes as well as contingency SDS storage in this area.

MPT Cooling Conveyor Storage Area

Up to one 20-cubic yard roll-off bin and various queued trays on conveyors that have exited the MPTs will be stored in this area.

Toxic Maintenance Area (TMA) Storage Area

The TMA storage area will be used to store miscellaneous waste drums, contaminated equipment, and leaking munitions.

Motor Packing Room (MPR)

Separated rocket motors will be stored in this room prior to transfer from the building for storage or treatment/disposal. In addition to the rocket motors, empty fiberglass shipping and firing tube (SFT) segments removed from the warheads will also be stored here. Typical containers will include DOT-approved shipping boxes. There is a 350-gallon storage capacity for the storage of 2 boxes of rocket motors and 2 boxes of empty SFTs in this area.

Motor Shipping Room (MSR)/Covered Loading Area

Separated rocket motors will be stored in this room prior to transfer from the building for storage or treatment/disposal. In addition to the rocket motors, empty SFT segments removed from the warheads will also be stored here. There is a 350-gallon storage capacity for the storage of 2 boxes of rocket motors and 2 boxes of empty SFTs in this area.

Box Transfer Areas 1 and 2

Separated rocket motors will be stored in these rooms prior to transfer from the facility for storage or treatment/disposal. In addition to the rocket motors, empty SFT segments removed from the warheads will also be stored here. There is a 3,000-gallon (total) storage capacity for 16 boxes of rocket motors in these 2 areas.

D-2a(2)(c): Waste Transfer Station (WTS)

The WTS consists of field-fabricated container storage building with 24,000 gallon container storage capacity, three 40,000 gallon tanker storage bays with secondary containment for a total of 120,000 gallon storage for bulk liquids and a concrete pad used to store roll-off boxes for

bulk solids with a storage capacity of 135,000 gallons. The CSF has a total of 279,000-gallon aggregate storage capacity. These areas will be used for storing and staging wastes generated at BGCAPP prior to offsite shipment to final treatment and disposal facilities.

D-2a(2)(d): Conyainer Storage Facility (CSF)

The CSF is identified as Building 110FF, it is a pre-engineered metal building constructed on a concrete slab. The structure has two roll up doors and two standard entry doors located on the east and west sides of the structure. The CSF is equipped with both MINICAMS and DAAMS for agent monitoring of the interior of the facility. The monitoring point is flexible and may change location within the building based on location of >1 Vapor Screening Level (VSL) waste containers within the structure. The MINICAMS alarm setpoint aligns with those set forth in the BGCAPP LAMP. CSF is equipped with an Exhaust Ventilation System (EVS) which includes an induced draft fan, filters and activated carbon media. The system is designed to provide induced air flow into the CSF and exhaust out through the EVS. If a MINICAMS goes into alarm, operators detecting the alarm will manually activate the carbon filtration system. In case of an unplanned or emergency event that resulted in agent vapor inside the CSF the carbon filtration system will be manually activated, the engineering controls provided by the EVS assure no agent vapor is released to the environment in compliance with KRS 224.1-400(4). Hazardous and secondary waste generated by BGCAPP Main Plant and SDC 1200 and 2000 operations will be stored at the CSF. BGCAPP Main Plant, SDC2000 SDC1200 secondary waste brought to this facility for storage will be shipped offsite for final disposal or may also be brought back to the originating facility for further management. The primary function of this facility is to provide storage capacity for these wastes at the BGCAPP Main Plant, SDC2000 and SDC1200 facilities. Primarily non-bulk containers will be stored at the CSF, additionally only DOT specification containers will be used to store hazardous and secondary waste in the CSF.

D-2b Containers with Free Liquids, and F020, F021, F023, F026, and F027 Wastes [401 KAR 34:180, Section 6 & 40 CFR 264.175]

The containments in storage areas used to store containers at BGCAPP will include sufficient volume to contain the largest container, more than 10% of all the containers (whether or not the containers actually contain liquids), or the volume of the largest vessel, tank, or miscellaneous unit located within each of the containments, or whichever is greater. In addition, containers of agent-derived secondary wastes packaged for off-site shipment and treatment/disposal are headspace monitored and are packaged to eliminate free liquids. The BGCAPP facility personnel do not anticipate storing F020, F021, F022, F023, F026, or F027 wastes at this facility. Part A of this application revision identifies the waste streams managed and stored in containers.

D-2b(1) Basic Design Parameters, Dimensions and Materials of Construction for the Containment System [401 KAR 34:180, Section 6 & 40 CFR 264.175]

The design and construction of the containment in the container storage areas will meet the requirements of Federal RCRA and Commonwealth of Kentucky environmental regulations. The concrete base for the containments are sufficient to withstand the stress of material transport equipment and equipment used to move containers within these areas.

D-2b(2) Description of How Design Promotes Drainage or How Containers are Kept From Contact with Standing Liquids in Containment System [401 KAR 34:180, Section 6, and 38:150 & 40 CFR 264.175 and 270.15]

Where possible, containers will be stored on pallets or containment pans to provide protection from contact with moisture or accumulated liquids. Other methods (e.g., use of slopes, drains, berms) will be used if containers cannot be elevated.

In particular, in the WTS and CSF, any container with liquids will be placed on pallets or containment pans.

D-2b(3) Capacity of the Containment System Relative to the Number and Volume of Containers to be Stored [401 KAR 34:180, Section 6 and 38:150 & 40 CFR 264.175 and 270.15]

Containment devices in storage areas used to store containers with liquids at BGCAPP will include sufficient volume to contain the volume of the largest container, or more than 10% of the aggregate of all the containers or the volume of the largest vessel or tanker.

D-2b(4)Provisions for Preventing or Managing Run-on [401 KAR 34:180, Section 6 and 38:150 & 40 CFR 264.175 and 270.15]

Buildings with roofs and raised thresholds prevent run-on from reaching the stored containers in permitted storage areas.

D-2b(5) How Accumulated Liquids can be Analyzed and Removed to Prevent Overflow [401 KAR 34:180, Section 6, and 38:150 & 40 CFR 264.175 and 270.15]

If generator process knowledge is not adequate to determine the characteristics of accumulated liquids, the BPBGT conducts analyses in accordance with Part C1 of this Permit Application to determine waste characteristics. After the characteristics of the liquid are known, removal will follow in accordance with the Spill Prevention Control and Countermeasures (SPCC) Plan.

D-2c Containers without Free Liquids and F020, F021, F023, F026, and F027 Wastes [401 KAR 38:150, Section 2 and 34:180, Section 6 & 40 CFR 270.15(b) and 264.175]

Not applicable. Although many containers of waste stored within the facility do not contain free liquids, the design of the permitted containments for containers includes capacities that exceed the containment capacities required by Federal or Commonwealth of Kentucky environmental regulations. BGCAPP is not seeking a waiver for storage of containers with no free liquids and does not plan to store F020, F021, F023, F026, or F027 wastes.

D-2d Requirements for Ignitable or Reactive Wastes and Incompatible Wastes [401 KAR 34:180, Sections 7 and 8 & 40 CFR 264.176 and 264.177]

Containers holding ignitable waste will be located more than 50 feet from the BGAD facility property line. Reactive waste will be separated (e.g., placed on a containment pallet) from other wastes by a distance of at least 4 feet, and located more than 50 feet from the BGAD facility property line. Secondary containment capacity is at least more than 10% of the maximum storage capacity of the containers in the separated area (e.g., containment pallet capacity would be equal to or greater than a single 55-gallon drum).

The BPBGT does not expect incompatible hazardous waste generation in facility processes. Incompatible waste, if generated, would not be stored together in the same container. BGCAPP personnel wash empty containers prior to reusing if the containers may have previously contained waste incompatible with new wastes being placed into the container. If questions arise about whether waste are compatible, BGCAPP conducts laboratory incompatibility determinations prior to storing containers near each other and to prevent storing potentially incompatible wastes within the same container. Incompatible waste in separate containers are either stored in separate containments or stored (if liquid) on separate containment pallets.

Containers hold only compatible waste, usually from a single waste stream. The capacity of the containment pallets is at least 55 gallons, more than 10% of the maximum container storage capacity, and equal to or greater than a single 55-gallon drum.

D-3 Process Information: Tank Systems [401 KAR 38:160 and 34:190 & 40 CFR 264.192 and 264.190 and 270.16]

All Subpart J Tanks and Tank systems previously permitted are inactive and being closed at the time of this submission. The following information in section D-2 Process Information: Tank Systems is included as reference for closure:

The BGCAPP tank systems are located outside, within the MDB, and within the SPB, and will be designed, constructed, and operated in accordance with all applicable standards of 401 KAR 39:060 Section 5 and 401 KAR 39:090 Section 1. Appendix D-3 contains a summary of the tank systems and a summary of sumps.

The BGCAPP waste storage tanks were fabricated from carbon steel or chemical-resistant alloys (e.g., Hastelloy® or stainless steel), which, through testing and use at other sites, have been shown to be compatible with agent and energetics hydrolysates, spent decontamination solutions, and brines. Fabrication of BGCAPP tanks includes additional shell thickness as a corrosion allowance-general corrosion will not become a critical factor during the life of the BGCAPP facility, and BGCAPP will perform non-destructive tank testing as necessary. Tank Assessment Reports (TARs) for the tanks used to store hydrolysates, spent decontamination solutions, and waste brine solutions were prepared and provided to KDEP.

All agent and agent-contaminated storage tanks are inside the MDB, and headspace emissions from these tanks will be vented through the off-gas treatment and MDB HVAC filtration systems. The HSA and STA waste storage tanks will contain liquids that are agent-derived (N001 and N002) and corrosive (D002). Secondary containment capable of containing the contents of the largest tank surrounds these waste tanks (as is provided for the process/storage tanks inside the MDB and SPB) and, because these storage tanks are located outdoors, the associated

containments can also capture a 25-year/24-hour storm event and have adequate “freeboard” to prevent “topping” to wind or wave action during or following this type of heavy rainfall event (i.e., sufficient freeboard to prevent topping due to wind or wave action if both of these events occur simultaneously).

The majority of treatment or storage tank systems (e.g., spent decontamination system [SDS], agent neutralization system [ANS], and ENS) will process a single waste stream, eliminating the possibility of waste stream incompatibilities. Tanks that may manage more than one waste are the energetics hydrolysate tank and the GB agent tanks in the HSA. The VX energetics hydrolysate tank will receive SDS that has been cleared for agent, these two wastes are similar in chemical makeup and fully compatible. OTM condensate will be sent to a GB agent hydrolysate tank, these two wastes are fully compatible.

The Part A form identifies the waste volumes treated or stored in tanks (T01 or S02). All Subpart J-regulated tanks in the HSA and STA will contain carbon filtration on the tank vents as necessary, which serve as Level 2 controls required by Subpart CC.

D-3a Tank Treatment System Descriptions

Specific treatment processes occurring in tank systems are identified below.

D-3a(1) Agent Neutralization by Hydrolysis (Tank System)

The agent drained from the munitions will be hydrolyzed in the two jacketed ANS reactors (up to 2,251 gallons each). The reactors will neutralize the agent, using process water and hot NaOH solution, and allow sampling of hydrolysate. The contents of the agent hydrolyzer will be agitated using the agent hydrolyzer agitator and external in-line static mixer in the recirculation loop to maintain uniform mixing, maximum agent droplet breakup, and allow collection of representative samples for laboratory analysis. After sampling, the sampling system will be flushed with heated process water to remove any remaining agent hydrolysate.

The ANS will perform the following functions:

1. Neutralize agent VX with caustic.
2. Process agent-contaminated spent decontamination.
3. Cool the hydrolysate from reaction temperature to 100°F for sampling.
4. Hold hydrolysate until sample analyses confirm the VX compliance limit reflecting 99.9999 percent agent DRE has been achieved. VX hydrolysates are sampled in the agent hydrolysate tanks.
5. Transfer cleared hydrolysate (i.e., 99.9999 percent DRE) to the agent hydrolysate storage tanks. Section D-8 discusses DRE approach.
6. Reprocess failed hydrolysate in the agent neutralization reactors until the VX compliance limit necessary for 99.9999 percent DRE is achieved.

D-3a(2) ENS (Tank System)

This system was not activated and never managed hazardous waste, the information is retained for historical and closure reference: The energetics hydrolysate will not be released from the MDB until it has been tested for agent and verified to have met all requirements for release from engineering controls. The hydrolysate will be transferred to the energetic hydrolysate storage tanks in the HSA. If the residual agent concentration is above the target release level, additional reaction time will be required in the ENRs before transfer to the HSA. Headspace gases from the ENRs will be sent to an air pollution control device (e.g., MPT OTM) and then released to the MDB HVAC filtration system.

D-3a(3) Decontamination Solution Supply and Spent Decontamination Solution Capture/Storage System (Tank System)

Decontamination solution will be used in the following activities:

a. Washing down and decontaminating agent spills
b. Decontaminating equipment and process lines
c. Decontaminating PPE that may have been contaminated during toxic-area entries.

Decontamination solution will be applied to an area of contamination and then rinsed with water after allowing sufficient contact time. The wash water will drain to sumps in the MDB.

The decontamination solution will be based on NaOH, water or other approved decontamination solutions. Decontamination solutions will be evaluated and selected based on overall performance, safety/health of workers, compatibility with agent air monitoring systems, compatibility with analytical methods for liquid clearance, and environmental impacts. Decontamination solutions will be collected in the SDS tanks. These will be characterized for agent and cleared prior to transfer based on criteria provided in the WAP. The SDS will either be transferred to the energetics hydrolysate HSA tanks after clearance to levels specified in the WAP or collected in containers and shipped off-site for treatment and disposal.

D-3a(4) HSA (Tank System)

Following confirmation of destruction, GB agent transfer of will occur through the existing agent hydrolysate line from HSS tanks MT-HSS-0105 or MT-HSS-0205 to the SPB. At the SPB, the agent hydrolysate line is manifolded to two common transfer lines, added as part of the approved SCWO bypass PMRs, that lead to the RO Reject Truck Loading Station. Transfer of VX agent hydrolysate from HSS tank MT-HSS-0104 will be performed the same way, through the existing agent hydrolysate line from the HSS tank to the SPB and then through the common transfer lines to the RO Reject Truck Loading Station. Prior to offsite shipment, each batch of GB agent hydrolysate and VX agent hydrolysate will be sampled and analyzed to ensure that these meet both DRE requirements and USAPHC WCLs, as described in the WAP. Note that agent hydrolysate will also potentially contain Spent Decontamination Solution (SDS) that has been cleared to permit required limits and transferred outside of the MDB to the HSS agent hydrolysate tanks.

D-3b Age of Tank System [401 KAR 34:190, Section 2 & 40 CFR 264.191(b)(4)]

Any BGCAPP tank systems are “new” tank systems in accordance with RCRA regulations.

D-3c New Tank Systems [401 KAR 34:190, Section 3 & 40 CFR 264.192]

D-3c(1) Assessment of New Tank System’s Integrity [401 KAR 34:190, Section 3 & 40 CFR 264.192]

The assessment of adequacy of the tank systems design was performed by an independent professional engineer (PE) and the resulting TARs were submitted to KDEP for review and approval on April 24, 2017. Underground storage tanks will not be used for hazardous wastes at BGCAPP, and tanks storing hazardous waste are located above ground only.

D-3c(2) External Corrosion Protection

Fabrication of BGCAPP tanks includes additional shell thickness as a corrosion allowance, and general corrosion will not become a critical factor during the life of the BGCAPP facility. The visible portions of each tank system are inspected daily for signs of external corrosion or releases of waste.

D-3c(3) Description of Tank System Installation and Testing Plans and Procedures [401 KAR 34:190 Section 3 & 40 CFR 264.192 (b-f)]

An independent, qualified installation inspector or an independent, qualified registered PE will inspect each new tank system prior to placing a new tank system in service. Inspection will include evaluation of/for the following items:

1. Welds to ensure the absence of breaks
2. Integrity to ensure the absence of punctures and cracks
3. Integrity of the protective coatings to ensure it has not been scraped through or otherwise removed in locations
4. Lack of corrosion
5. Other structural damage or inadequate construction/installation.

Discrepancies identified by inspection will be repaired by appropriate methods, and tank systems will not be placed into service without satisfactory inspection results and repairs (if needed).

Hazardous waste tanks and associated ancillary equipment will be tested for tightness to liquid and vapor before being placed into use. Identified discrepancies will be repaired and the tank systems will not be placed into service until applicable inspections have been satisfactorily completed.

Ancillary equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

Written assessments reviewed and certified by a qualified registered corrosion expert will be performed, indicating the degree of corrosion protection on the tank systems will be adequate and have been properly installed.

D-3d Dimensions and Capacity of Each Tank [401 KAR 38:160 & 40 CFR 270.16(b)]

The capacity and number of hazardous waste tanks is specified in the Part A permit application. The tank dimensions were submitted to KDEP in the TARs submitted prior to beginning BGCAPP tank construction. Capacities for each tank are summarized in Table D-2. Dimensions of each tank are summarized in Table D-3.

D-3e Description of Feed Systems, Safety Cutoff, Bypass Systems, and Pressure Controls [401 KAR 38:160, Section 1 & 40 CFR 270.16(c)]

The PFDs and P&IDs provided to KDEP show the feed systems, safety cutoffs, bypass systems, pressure controls, and vents present on each tank and tank system, and Table D-2 lists the level sensors and level switches present on each tank. Operation of BGCAPP tanks incorporates controls and follows practices designed to prevent spills and overflows. These tank systems have spill prevention controls, including check valves and tight shutoff valves. Lines that are below the liquid level in the tank incorporate one or more check valves to prevent backflow from downstream equipment that might cause overfilling. All tanks also have overfill controls, including level transmitters and high level alarms with level switches that automatically shut off flow to the tanks. The overfill controls will consist of level sensors that are observed and controlled by operators in the CCRs located in the control and support building (CSB) and the SPB. Trained operators and supervisors will staff these CCRs when the process is operational.

A general summary of these features and controls is as follows:

NOTE: The high-high level switches (LSHH) present on tanks are less than the “Contained Air Volume” of the tank, which is the basis for the secondary containment volumes.

1. Tanks will be equipped with level transmitters connected to the vessel directly or through diaphragm seals by either flange or national pipe taper connection.
2. The process fluid and vessel design were the basis for selecting the type of level transmitter. Tank level measurements will compensate for changes in fluid density when level is a critical parameter.
3. The level indicators will feed to the Control Room (CON).
4. On high level reading, an alarm will sound in the CCR.
5. On tanks equipped with high-high level (LSHH) reading, the facility control system (FCS) will shut off power to the feed pump.
6. On tanks with high-high-high level sensors (LSHHH), waste feed valves to those tanks will be automatically shut.

Table D-2: RCRA Tank Volumes

1

Table D-3: RCRA Tank Dimensions

Every tank is located in a spill containment area whose volume is adequate to hold the liquid from the largest tank. Each tank will be further equipped with an overflow pipe or piping or pressure relief that discharges to another tank, a sump, or containment of adequate volume to meet the requirements of 401 KAR 34:190 and 40 CFR 264.193. The PE will verify the adequacy of these designs as part of the TARs discussed and referenced in section D-3c(1).

Calibration and testing of the level indicators and shutdowns will occur a minimum of once per year, or be based on manufacturer's recommendations. BGCAPP maintenance will verify the calibration of the level indicators, checking against the inventory records for each tank to ensure accuracy, and BGCAPP will test the alarms and automatic feed cutoffs each month to ensure operation as designed.

D-3f Diagram of Piping, Instrumentation and Process Flow [401 KAR 38:160, Section 1 & 40 CFR 270.16(d)]

The current active units (WTS, CSF) have no piping, instrumentation or process flow diagrams. Containment and Detection of Releases [401 KAR 34:190, Section 4 & 40 CFR 264.193]

D-3f(0) Exemption to Secondary Containment

No exemption to the secondary containment requirements of 401 KAR 34:190, Section 4, or 40 CFR 264.193 is requested or claimed.

D-3f(1) Plans and Description of the Design, Construction, and Operation of the Secondary Containment System [401 KAR 34:190, Section 4 & 40 CFR 264.193(a), (b)(1), and (c)(1)-(c)(4)]

Assessment information on the containment design was submitted to KDEP either as part of a system-specific TAR (e.g., HSA tanks) or as part of a TAR specifically addressing the containment (e.g., MDB horizontal concrete). KDEP subsequently evaluated and approved these TARs to include calculations comparing the minimum required containment volumes and volume provided by the containment design.

D-3f(1)(a) Exceptions for Ancillary Equipment

No exceptions from secondary containment are requested for ancillary equipment.

D-3f(2) Requirements for External Liner, Vault, Double-Walled Tank or Equivalent Device [401 KAR 34:190, Section 4 & 40 CFR 264.193 (d)-(e)]

External liners will provide the secondary containment for the BGCAPP new tank systems in this permit application. The following subparagraphs summarize how these containments comply with environmental regulations:

NOTE: The secondary containment systems in the MDB and SPB has been re-evaluated with respect to how each type of containment has been designated. BPBG has prepared an Equivalent Device petition that was submitted to KDEP. This petition was subsequently approved, with conditions, by KDEP. Franklin Engineering is currently incorporating the equivalent device petition approval into the revised Tank Assessment Reports, which will be provided to KDEP once final.

a. The design of secondary containments for the BGCAPP tank system(s) will include capacities that exceed the maximum capacity of the largest tank within its boundary. The volumes for these secondary containments were provided in the PE-certified TARs previously submitted to KDEP.

b. Roofs over the BGCAPP tank systems will prevent run-on or infiltration into secondary containments except for the outdoor hazardous waste tank systems (i.e., STA and HSA). The secondary containments for these outdoor tank systems are of sufficient capacity to contain the largest tank and run-on/precipitation from a 25-year, 24-hour rainfall event with adequate allowance for "freeboard" (i.e., sufficient freeboard to prevent topping due to wind or wave action if both a leak of the largest tank in the containment and the 25-year, 24-hour rainfall event occur simultaneously).

c. These secondary containments will be free of cracks or gaps.

d. These secondary containments were all designed to surround the tanks and cover all the surrounding soils and prevent contact with tank wastes if leaks from the tanks occur.

e. These secondary containments will be lined with coating materials, compatible with the wastes stored, and will be effective as proven at other waste management facilities.

Category A and Category B sumps are a part of the SDS tank system. As such, the sumps are double-walled and have metal liners. An ultrasonic level-detection sensor will detect the presence of liquid in the sump. The capacitance probe will detect fluid in the interstitial area between the inner and outer sump walls. This will be the leak detection method for leaks occurring in primary sumps. These sumps meet the regulatory requirements for an open-surface tank because these sumps routinely receive/store agent-derived decontamination solutions during PPE decontamination following entry of personnel into the Category A and Category B areas. CCR operators will pump wastes reaching these sumps to the SDS. If an operator identifies a leak from the outer sump wall to the inner sump wall, BGCAPP will remove the sump from service for repair.

Containments in Category A and Category B areas slope so that liquid spills or leaks in the containment will drain to the sump(s). The sumps in these areas incorporate leak detection sensors instrumented to sound an alarm in the CCR. The CCR operator responsible for the area with the leak detection alarm can take actions needed to investigate the leak, identify the cause of the leak, and initiate appropriate corrective action (e.g., begin repairs, remotely initiate a pumping of the liquid in the sump to the SDS or to the agent collection/toxic storage tanks).

Category C and Category D sumps and sumps in outdoor hazardous waste tank areas will be lined but may not have alarms or stationary, instrumented pumps to drain the sumps. Tank systems in these areas will be inspected daily, and leaks identified, reported, contained, and repaired/removed in a manner consistent with 40 CFR 264.193(c)(4).

A listing of all sumps is provided in Appendix D1.

HVAC condensate will be generated by recirculating cooling units (RCUs) in Category C and Category D areas, in the same manner that condensate will be generated in Category A and Category B areas. However, the management of the condensate streams in Category C and Category D areas will differ from that in Category A and Category B areas. For those RCUs located in Category C areas, the condensate will be drained to Category C sumps. These sumps will be connected to the MDB's SDS and will be emptied within 24 hours of accumulation of wastes. Category D sumps will be inspected daily and the results documented on the applicable inspection forms. If any wastes are discovered in these sumps, the wastes will be removed as soon as possible, but always within 24 hours, and properly disposed of. Also, based on the configuration of these sumps, a check valve on the sump line combined with the top feeding of the SDS tanks would not allow for any agent-contaminated SDS liquids to flow back into the sumps. MINICAMS® monitoring will be continuous in the Category C areas and would detect the presence of any agent-containing liquids/wastes in these sumps.

D-3f(3) Secondary Containment and Leak Detection Requirements for Ancillary Equipment [401 KAR 34:190, Section 4 & 40 CFR 264.193(c),(f))]

Piping and fittings are above ground and will either be visually inspected for leaks daily or are equipped with leak detection. All piping and fittings containing agent or agent-contaminated liquids are located in the MDB, which will have engineering controls for liquids, monitoring for agent vapors, and closed-circuit television (CCTV) surveillance allowing remote observations of areas for the detection of leaks.

D-3f(4) Requirements for Existing Tank Systems Until Secondary Containment is Implemented – [401 KAR 34:190, Section 4 & 40 CFR 264.193 (i)(1) – (i)(5)]

Not applicable. All tanks in BGCAPP are new with secondary containment provided for all hazardous waste tank systems in this Permit Application.

D-3f(5) Variance from Secondary Containment [401 KAR 34:190, Section 4 & 40 CFR 270.16 (h), and 264.193 (g)(1) – (g)(3)]

Not applicable. BGCAPP is not requesting any variance from secondary containment requirements.

D-3g Tank Management Practices

The BGCAPP tanks and tank systems are equipped with numerous layers of protection to minimize the possibility the hazardous wastes or treatment reagents will cause any elements of a tank system to rupture, leak, corrode, or otherwise fail.

D-3g(1) Controls and Practices to Prevent Spills and Overflows [401 KAR 34:190, Sections 4, 5 and 6 & 40 CFR 264.194(a) and (b), and 264.195(a) – (c)]

D-3g(1)(a) Wastes or Treatment Reagents Will Not Cause Damage

The TARs previously submitted to KDEP certified the design of all the hazardous waste tank systems in this Permit Renewal. These TARs provided information on the tank systems, including the associated secondary containments and ancillary equipment. These PE-certified TARs provide independent assurances that the tank systems can function without releasing wastes to the environment, and that hazardous waste or treatment residues placed in the tank system do not cause any element of the system to rupture, leak, corrode, or otherwise fail.

These tanks will have fixed roofs and, with the exception of the STA and HSA tank systems, the associated secondary containment sumps and the secondary containment system is located indoors without the additional capacity required to capture precipitation. The volumes of the secondary containments for the outdoor HSA and STA will provide adequate volume to contain the largest tank, provide capacity for a 25-year, 24-hour rainfall event, and sufficient freeboard (i.e., sufficient freeboard to prevent topping) to address overtopping by wave or wind action.

D-3g(1)(b) Spill and Overfill Prevention Controls

Operation of BGCAPP tanks will incorporate controls and follows practices designed to prevent spills and overflows, as described in section D-3e. These tank systems have spill prevention controls, including check valves and tight shutoff valves. Lines that are below the liquid level in the tank incorporate one or more check valves to prevent backflow from downstream equipment that might cause overfilling. As indicated, all tanks also have overfill controls, including level transmitters, high-level and high-high-level alarms, and automatic feed cutoffs.

D-3g(1)(c) Calibration and Testing

Calibration and testing of the level indicators and shutdowns will occur at a minimum of once per year or based on manufacturer's recommendations. BGCAPP maintenance will verify the calibration of the level indicators, checking against the inventory records for each tank to ensure accuracy, and BGCAPP will test the alarms and automatic feed cutoffs each month to ensure operation as designed.

D-3g(1)(d) Inspection Schedule and Procedure

Plant operators will conduct daily inspections of overfill controls, tanks, data from monitoring and leak detection equipment, construction materials, and the area surrounding the tank systems. Inspections of the tank systems within the Category A and Category B areas (within the MDB) may be conducted from observation areas around the systems or during worker entries into these areas. Scheduling of these inspections may be less than daily based on worker entry schedules. Worker entries will not be conducted solely for tank system inspections (i.e., due to inherent risks). CCR operators also can use CCTV to conduct inspections of the Category A and Category B areas within the MDB on a weekly basis. The basis for the frequency of inspection will be the rate of possible deterioration of equipment and the probability of an environmental or human health incident if deterioration, malfunction, or operator error goes undetected between inspections. BGCAPP will conduct daily inspections of areas subject to spills, including loading and unloading areas if in use. Details will be provided in the Facility Inspection Plan, which is currently a Compliance Schedule Item requiring submission.

The following paragraphs summarize the criteria and regulatory requirements for these inspections.

1. The aboveground portions of each tank system will be inspected daily for signs of external corrosion or releases of waste – 401 KAR34:190 Sections 4 and 6 (40 CFR 264.195).
2. Overfill controls will be visually inspected monthly if waste is present in the tank system. The inspection will consist of visual observation of the external overfill controls for evidence of deterioration or malfunction. A reading of the level sensors and transmitters associated with overfill control will be obtained daily by operators – 401 KAR34:190 Section 6 (40 CFR 264.195(a)).
3. The BGCAPP hazardous waste tank systems outside the Category A and Category B areas in the MDB (including tank shell and bottom, piping and valves, pumps, tank supports, and construction materials, area around the tank, and secondary containment system) will be visually inspected once daily to detect corrosion, erosion, or signs of waste releases – 401 KAR34:190 Section 6 (40 CFR 264.195(b)).
4. BGCAPP personnel will monitor the temperature, pressure, and flow/level during transfer operations. BGCAPP personnel will also conduct daily inspections of leak detection equipment, including the level indicators in the sumps. The data gathered from monitoring will be reviewed at least daily to ensure tank systems are operating in accordance with design specifications – 401 KAR34:190 Section 6 (40 CFR 264.195(b)).
5. BGCAPP personnel will inspect hazardous waste tank area sumps, trenches, and secondary containments at least daily. The inspection will consist of a visual observation (i.e., using CCTV and instrument readings) of the sumps, trenches, secondary containment, and readings of the level indicators in the sumps – 401 KAR34:190 Section 6 (40 CFR 264.195(b)).
6. The tank systems within the Category A and Category B areas in the MDB will be inspected weekly – 401 KAR34:190 Section 6 (40 CFR 264.195(c) and (d)).
7. BGCAPP does not provide external cathodic protection for the hazardous waste tanks; therefore, inspections of this item will not be required.

BGCAPP will comply with the requirements of 401 KAR 34:190 Section 7 (40 CFR 264.196) if a leak or spill occurs in the tank system.

D-3h Special Requirements for Hazardous Wastes F020, F021, F022 F023, F026, and F027 in Existing Tanks [401 KAR 34:190, Section 4 & 40 CFR 264.193]

Not applicable. BGCAPP will not accept, store, or produce these F-listed wastes.

D-3h(1) Tank Systems with Ignitable or Reactive Wastes [401 KAR 34:190, Section 9 & 40 CFR 264.198(a)-(b)]

Potentially reactive waste (propellant from “leaker” rocket motors) may be treated in the ENR tanks. However, the waste will be stored and treated in the tanks such that uncontrolled reactions will not occur. Standing operating procedures (SOPs) will include use of temperature control through jacketed reactor heating and cooling, nitrogen blanketing, continuous mixing, and controlled reagent addition along with monitoring of reactor content conditions with sensors (e.g., temperature, pH).

D-3h(2) Tank Systems with Incompatible Wastes [401 KAR 34:180, Section 8 & 40 CFR 264.177(a),(c) & 40 CFR 264.17 (b)]

Not applicable. BGCAPP does not expect to use facility tank systems to store or treat incompatible wastes.

D-4 Surface Impoundments [401 KAR 34:200 and 38:170 & 40 CFR 264. 220 and 270.17]

Not applicable. BGCAPP waste management units do not include surface impoundments.

D-5 Waste Piles [401 KAR 34:210 and 38:180 & 40 CFR 264.250 and 270.18]

Not applicable. BGCAPP waste management units do not include waste piles.

D-6 Land Treatment [401 KAR 34:220 and 38:200 & 40 CFR 264.270 and 270.21]

Not applicable. BGCAPP waste management units do not include land treatment.

D-7 Landfill Design [401 KAR 34:230 and 38:210 & 40 CFR 264.300 and 270.20]

Not applicable. BGCAPP waste management units do not include landfills.

D-8 Incinerators [401 KAR 34:240 and 38:190 & 40 CFR 264.340 and 270.19]

Not applicable. BGCAPP waste management units do not include incinerators.

D-9 Miscellaneous Units [401 KAR 38:230 and 34:250, Section 2 & 40 CFR 270.23 and 264.601]

All Subpart X Miscellaneous Units previously permitted are inactive and being closed at the time of this submission. The information in the section D-8 Miscellaneous Units is included as reference for closure:

Multiple hazardous waste treatment units will be used to destroy the chemical weapons stockpile at BGCAPP. Treatment will occur in both tank systems and miscellaneous (Subpart X) units. These treatment units have been installed during the RD&D program. Each hazardous waste treatment unit has been designed, constructed, and will be operated in accordance with the applicable standards from 401 KAR Chapter 34 (Standards for Owners and Operators of Hazardous Waste Storage, Treatment and Disposal Facilities). Appendix D1 contains a summary of the miscellaneous units.

D-9a Description of Miscellaneous Units

D-9a(1) Description [401 KAR 38:230 and 34:250, Section 2 & 40 CFR 270.23(a)(1) and 264.601]

An overview of all treatment units is provided in section D-1. Specific miscellaneous and tank treatment unit processes are described in detail below in the general order in which treatment will occur. Specific unit footprints, physical characteristics, and dimensions are provided in the drawings previously submitted.

D-9a(1)(a) Munitions Unpacking (Miscellaneous Unit)

EONCs containing munitions will be moved from the CHB to the UPA of the MDB for processing. Before the EONC is opened in the UPA to access the munitions, the air in the sealed EONC will be monitored for agent. If agent is detected above an approved action level, the EONC will not be opened until it is transported to the EONC leaker airlock. If no agent is detected, the EONC will be opened in the UPA and the munitions will be unloaded for processing. Unburstered projectiles will be loaded onto a munition tray; the tray will be placed on a conveyor and moved to the nose closure removal (NCR)/munitions washout system (MWS) station. Rockets will be loaded onto the rocket input assembly and conveyed into the ECV where the RCM will begin the processing of the rockets.

If agent is detected in the EONC (indicating a leaking munition), the EONC will be moved to the EONC leaker airlock, which is designed to handle the opening of containers with leaking munitions. In the leaker airlock, the EONC will be opened and the munitions processed by personnel wearing appropriate PPE; they will remove the munitions from the EONC and place these on the appropriate processing conveyor line, with the munitions passing through the ECV or toxic maintenance area (TMA). The contaminated metal straps will be transferred to the MPT for treatment. The contaminated wood pallets may either be treated on site by chemical decontamination or treated in the MPT and then shipped off-site to a permitted TSDF. The EONC will be decontaminated and released for further use.

Overpacked rockets and overpacked projectiles will be removed from the overpacks and placed on the respective conveyors for processing as described above. Overpacked unburstered projectiles will be loaded onto a munition tray for processing through the NCRS.

D-9a(1)(b) Projectile Input Subsystem (Miscellaneous Unit)

The 8-inch GB projectiles will be unpacked in UPA-1, then transferred to UPA-2 and on to the Tray Container Transfer Room and then to the MWS Room for reverse assembly.

The projectile feed conveyor will consist of a combination of a roller-type conveyor and an airlock assembly with a series of doors. The doors will provide for an airlock between the TCTR and the UPA and will provide negative pressure in the MWS Room, preventing air from flowing back into the UPA.

D-9a(1)(c) Rocket Non-Destructive Examination

M55 rockets will be unpacked on the receiving table in the UPA, placed onto the rocket non-destructive examination feed tray. Rockets undergo a non-destructive non-intrusive X-ray examination for potential agent leak. After clearing the examination, the rockets are placed on the input assembly, and conveyed to the ECV for processing on the vertical rocket cutting machine where the warhead is de-mate from the rocket motor. The warhead is moved to the

ECR for processing at the RSM punch and drain station prior to moving to the crimp station for containerization of the warhead. . .

D-9a(1)(d) Nose Closure Removal Station (Miscellaneous Unit)

The NCRS will remove the nose closures from the unburstered nerve-agent projectiles by unscrewing these from the nose of the projectile and placing the removed nose closures in a storage bin or tray. After the nose closures have been removed from each projectile, a robot will transfer the projectile from the NCR station to the MWS station. The removed nose closures that are placed on munitions trays will be processed through the MPT.

D-9a(1)(e) Munition Washout System (Miscellaneous Unit)

After the nose closures are removed, the projectiles will transfer the projectile from the NCRS to the weigh station/burster probe (WS/BP) where the BP verifies that there is no burster present within the munition. If a burster or other obstacle within the projectile is indicated by the BP, the projectile will be placed on the reject table. If no burster is present, the projectile will be transferred to an available MWS Cavity Access Machine (CAM). The projectile will be inverted and placed into the CMA, and a ram will be hydraulically forced into the projectile, collapsing the burster well into the agent cavity. The agent will drain by gravity and then be pumped to the agent storage tank in the ANS. A washout nozzle array (nozzles providing high-pressure water jets) will be integrated into the shaft of the burster well ram and provide the high-pressure water sprays to clean and flush the cavity.

After flushing of the cavity, the projectile will be transferred back to the WS/BP where it will be weighed. If the projectile meets established criteria, the projectile will be placed back on the munition tray and transferred to the MPT. If for any reason a projectile cannot be processed or does not meet the drain criteria, it will be placed in storage on a reject table (permitted storage area listed in the Part A) in proximity to the MWS, where the rejects can be managed until processed manually. The Pilot Test Plan will be developed that will contain information to address establishment of the drain criteria.

The following safety cut-offs are part of the MWS:

1. Rope switches on each side of the conveyors hardwired into the control circuits of the motors will be provided for emergency stop, and if either of these switches trip, an alarm will be generated at the FCS.
2. Motor fault alarms on the MWS input airlock out-gate and MWS input airlock in-gate will provide notification if the gates are not working properly. Additionally, gate clear switches are included under the airlock gates to ensure there will be no obstructions prior to gate closing.
3. Redundant safety stop switch will be provided inside the MWS input airlock gate to ensure trays do not damage the gate.
4. Collision detection software is included with the MWS robot to prevent damage to the robot, projectiles, or other equipment in the event of a collision.
5. A burster detector laser probe will verify there is no burster present prior to processing of a projectile in the CAMs.
6. A laser sensor for each CAM will verify the burster ram is in the retracted position prior to projectile movement into and out of the CAM.

7. CAM fault status will indicate when a malfunction prevents the clamp holding a projectile from opening.
8. In the event an MWS CAM fails to rotate a projectile, inductive sensors will detect the lack of rotation of the CAMs drive wheel.
9. Alarms will notify control room in the event drained agent valves fail to open or close.
10. The weigh scale will detect overweight condition of a projectile in the event the cavity is not accessed and drained properly.
11. A fault alarm will identify if a tray is out of position on the CAM out-feed conveyor.
12. A fault alarm will identify that the conveyor turntable fails to operate due to mechanical problems.

D-9a(1)(f) Rocket Warhead Containerization System (RWCS)

In order to support the processing of warheads in the SDC units, M55 rockets will be de-mated and punched and drained using the existing Vertical Rocket Cutting Machine (VRCM) and Punch and Drain Station (PDS). The RWCS will be used to containerize the warheads that have been separated from the rocket motor assembly and drained of chemical agent. Following the de-mating and punch and drain process, the warhead will proceed to a wrapping station where it will potentially be wrapped with a material suitable for minimizing spread of contamination prior to being transferred into a steel warhead canister. Note that the use of an orbital wrapper is currently considered as optional, as wrapping a rocket warhead will potentially be unnecessary. Warheads entering the ECR will be punched and drained at the RCM. The drained warhead is then transferred to the RWCS crimping station where it is placed into a steel warhead canister. Once in the canister, a plug is inserted into the opening of the canister and the canister is sealed to eliminate the ability for residual agent to escape. This loaded canister passes from the ECR to the EBH room through an airlock where the canister is weighed, and the amount of remaining agent is calculated based on the canister weight (and wrap weight, if applied) and a nominal undrained warhead weight. The canister is then passed to the labeling station where labels will be attached. Cannister labels include a QR code for barcode scanners, as well as processing information such as line serial number, cannister serial number, date, timestamp, and net weight. Hazardous waste markings and labels will be applied to the pallet in the facility and will include required RCRA information. The loaded and labeled canister is then placed onto a skid with integral liquid containment. Canisters will continue to be added to the transfer skid until up to 25 have been added to the skid or a decision is made to transfer the skid without filling. Once a decision is made that no additional canisters will be inserted into the skid, it will be processed into the tray transfer room. The skid is then monitored using near real-time monitoring via MINICAMS before being transported to permitted storage within the chemical limited Area (CLA) until further processing takes place in an SDC. The monitoring level will be specified in the MINICAMS/DAAMS Monitoring Table at the 95% confidence level for ensuring <1 VSL, which is currently an alarm level of 0.5 VSL

D-9a(1)(g) MPT (Miscellaneous Unit)

The MPT will thermally decontaminate munitions bodies and other materials using inductive heating and superheated steam. Air will be excluded from the system through the use of airlocks and nitrogen purges.

Projectiles and other materials will be placed in trays on a conveyor for processing. The rolling conveyor will convey or carry these through the first MPT door into the inlet airlock. The tray will be staged in the inlet airlock, which is purged with nitrogen, until other trays in the MPT have

completed processing and been moved downstream. The tray will then be conveyed through the gate into MPT zone 1, where it will be held until it reaches the desired initial temperature. It will then be moved into MPT zone 2 where it will be further heated for a sufficient time to ensure the complete mass of material has achieved a minimum of 1000°F for a minimum of 15 minutes. After these conditions have been achieved, the tray from zone 2 will be moved into the exit airlock where it will be kept for a sufficient period to ensure it has cooled in the nitrogen atmosphere to prevent the formation of dioxins and related compounds. This type of sequential operation will allow for continuous treatment of trays of material while ensuring the material in each tray has been heated to a minimum of 1000°F for a minimum of 15 minutes.

Safety cut-offs for the MPTs include:

1. Emergency stop rope switches on the external feed conveyors.
2. Safety limit switches for tray forward and reverse motion to prevent airlock gate damage.
3. MPT shutdown in event of cooling water interruption or high-high temperature.
4. Valve closures to isolate the inlet airlock from the outlet airlock in the event of MPT shutdown or other abnormal condition.
5. Airlock gate emergency stops.
6. Airlock/MPT conveyor emergency stops.
7. Interlock preventing opening of MPT chamber and out-gates when oxygen content is 3 vol% or greater.

D-9a(1)(h) MPT Cooling System (MCS) (Miscellaneous Unit)

The MPT cooling system (MCS) will cool the trays exiting the MPT to a temperature that allows safe handling.

D-9a(1)(i) OTM (Miscellaneous Unit) and OTE (Miscellaneous Unit)

The OTM (a Subpart CC permitted control device) will remove air pollutants from the MPT offgas and from the vent gases of the ACS, ANS, and SDS tank systems. The OTM will consists of:

- Two TOXs
- Two cyclones
- A common wet venturi scrubber system
- Filters and blowers.

Each MPT will have its own TOX and cyclone, and the offgas from the two MPTs will be combined prior to further treatment in the scrubber system and filter before discharge to the MDB HVAC filtration system.

The TOX unit will be a flamed thermal oxidizer that oxidizes organics that may be present in the MPT, ANS room tanks, and ENS offgases. It will handle a wide variety of materials, including halogenated organics, methane, hydrocarbons, ammonia, carbon monoxide, and hydrogen.

The TOX unit will handle the following input streams:

1. Air feed to the oxidizing section to ensure the residual oxygen level in the unit effluent will be at least 5 percent.

2. Fine mist of water to the oxidizing section to maintain the operating temperature at 2000°F with capability to operate at 2200°F if the gas feed has a higher heating value. A 2200°F temperature will be required if contaminated wood pallets and SFTs from CRMs from the rocket handling system are processed in the MPT.
3. Natural gas to maintain the operating temperature at 2000°F (or 2200°F) if the heating value in the gas feed is not sufficient to maintain the operating temperature.
4. Fine mist of water to the cooling section to maintain the exit temperature at 1200°F.

The TOX will consist of two sections, an oxidizing section, and a quench section. The oxidizing section will have a minimum gas residence time of 2 seconds within a temperature range of 2012°F to 2372°F.

The MPT cyclone will remove ash and other large particulate matter from the TOX unit effluent gases and discharge the gases to the combined scrubber system.

The venturi/scrubber system is a combination of a venturi impaction scrubber that captures particulates and rapidly quenches the hot gases, followed by an absorption tower that captures acid gases. Caustic solution will be added to the system to maintain pH and neutralize the captured acids.

The OTM off-gas filter will remove residual particulate matter greater than 3 µm in diameter. This filter will also serve as a demister, removing fine mist that may pass through the scrubber tower's demister system.

The gas reheater will reheat the OTM outlet gases to maintain the relative humidity of the blower effluent stream below 55 percent, to avoid condensation in the HVAC ducts. The treated offgases from the OTM will then go to the MDB HVAC filtration system. There will be instances where the OTM will not be in operation when chemical agent will be present in the MDB. These instances include situations where there may be a momentary "flame-out" of the TOX units due to an unforeseen situation. In the interim, until the TOX units can be brought back on-line, there are no plans to remove chemical agent from the MDB, as this would not be protective of human health and environment. Protection will be maintained in these instances by the HVAC carbon filtration system followed by air monitoring at the stacks to demonstrate that no agent is released to the environment.

Safety cutoffs for the OTM system include:

1. Emergency stops are located near the OTM equipment.
2. High-high temperature at venture inlet stops natural gas feed to and shuts down the TOX unit.
3. High-high temperature of cyclone or scrubber outlet gas stops the natural gas feed to and shuts down the TOX unit.
4. High-high process gas temperature at TOX combustion zone shuts down TOX unit.
5. High-high process gas temperature at TOX outlet shuts down TOX unit.
6. High-high process gas pressure at TOX outlet shuts down TOX unit.
7. Low process water flow at water spray lances shuts down TOX unit.
8. Low process air flow at quench water spray lances shuts down TOX unit.
9. Both MPT blowers offline shuts down the TOX units and other OTM equipment.

10. High-high exhaust pressure to MDB HVAC carbon system shuts down the affected blower.
11. TOX unit shutdown or off-normal conditions directs OTM Condensate to the SDS tanks.

Note that OTM condensate, regardless of whether it is transferred to the HSA tank reserved for it during the GB campaign or to the RO reject tanks, will be managed as listed waste.

Table D-4: BGCAPP Estimated Condensate Generation

Condensate Type	Generation Rate	Duration	Total Estimated Condensate Generation
OTM Condensate	1540.9 lbs/hour	135 weeks	34,947,158 lbs

Safety cutoffs for the OTE system include:

OTM condensates will be used throughout the facility processes in several locations as outlined in the project water balance and as discussed in Section D-1a(6) above. Please note that the water balance PFDs have previously been provided as document number 24915-00-M5-00-00003.

D-9a(2) Treatment Unit Design/Construction Details [401 KAR 250, Sections 1, 2 and 3 & 40 CFR 270.23(a)(2), 264.601, and 264.602]

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

D-9a(2)(a) Criteria Used for Location of Units

The BGCAPP facility is located on BGAD near the munitions storage area to minimize the distance chemical munitions are transported. This location minimizes the risk to the public and workers while being compliant with prohibitions against public transport of chemical weapons. Part B of this application addresses the adequacy of the BGCAPP location within BGAD (e.g., geology, surrounding land use, seismic concerns, and meteorology).

D-9a(2)(b) Design and Construction (including containment systems)

During construction, a Professional Engineer (PE) has been and will continue to be present at the facility to verify the hazardous waste management units (HWMUs) are being built in accordance with the facility design. Before pilot testing with hazardous waste begins, a PE will perform facilities construction certification (FCC) of each Kentucky regulated hazardous waste building, area, and system. The PE will certify that each building, area, and system has been constructed as designed and in accordance with the permit. The FCC process is required by 401 KAR 38:030, which in this case is governed by 40 CFR 270.30 (l)(2)(i). Containment systems are discussed in sections D-2 and D-3.

Individual subsystems have been and will continue to be completed in a staged manner. As a subsystem is completed, it will be turned over to the Systemization Group, which will test its mechanical ability, liquid and gas containment integrity, and numerous other functions. Systemization will be conducted using simulant and surrogate materials, and no chemical agent or any agent-contaminated materials will be processed during systemization. Although the systemization phase of the program does not involve the processing of hazardous waste, it is the first part of the overall on-site RD&D program. The RD&D objective that begins during systemization will be the assessment of the system's overall ability to function as an integrated unit, and the identification of problems in the interfaces between the subsystems.

D-9a(2)(c) Operating Conditions

After all of the subsystems have been subjected to rigorous testing under the systemization program and the results of systemization have been deemed acceptable by the Department of the Army, ACWA, and BPBG, the program will move into the second on-site phase of the RD&D program, termed "pilot testing." Pilot testing starts by processing the munitions at very slow rates, with a large amount of testing and verification taking place during the processing. Pilot testing will begin with the processing of GB rockets, followed by projectiles. It is anticipated testing with the GB inventory will meet the system integration objectives of the RD&D program.

The basis for this conclusion are as follows:

- All of the components of BGCAPP were tested during the RD&D program.
- The Newport Chemical Agent Disposal Facility (NECDF) completed operations on VX years prior to the start of BGCAPP operations; therefore, an RD&D program is not required for this agent. Treatment of munitions will ramp up during the RD&D program, with GB munitions processing taking place slowly. As the system is validated and issues are identified and resolved, the processing rates will increase over a period of approximately 5 months (the 5-month period is based on an assumption that no major problems arise). The program schedule is designed to allow sufficient time to identify and overcome minor problems. If major problems arise during the RD&D period, the RD&D program may require the full 1-year period allowed by the RD&D regulations that is being requested in this permit application. It is the intent of BPBG to use the entire RD&D campaign to treat all GB agent containing munitions and associated wastes. If operations take longer than the anticipated one year, BPBG may seek additional time as outlined in the Office of Solid Waste and Emergency Response (OSWER) Policy Directive for RD&D permits.

BGCAPP is an integrated facility whose effectiveness depends on the integrated processes, and not the effectiveness of individual miscellaneous Subpart X (or other) treatment units. The sole function of BGCAPP is destruction of the chemical agent and treatment or disposal of the associated energetics, and operating conditions will be selected to meet that function. The operating conditions of some units (e.g., MPT) will be well defined before start of operations. The operating conditions of other units will be adjusted as necessary during pilot plant testing to determine optimal conditions.

For hydrolysis of agent and energetics, destruction of GB to a 99.9999 percent DRE has been demonstrated at bench scale. Approximate temperature and reaction times have been determined that will ensure agent and energetics are hydrolyzed and aluminum components are dissolved. Conditions will ensure 99.9999 percent DRE will be accomplished by the ANS.

For the MPT, the Department of the Army cites a temperature of 1000°F for at least 15 minutes as a performance-based standard for the destruction of chemical agents. The MPT unit has been designed, tested, and demonstrated to meet this military unique chemical agent treatment standard. This standard (previously referred to as XXXXX or 5X) has been used for more than 30 years and, when met, allows the release of the treated item or waste to the public. Treatment of metallic and other solid wastes, including secondary wastes, potentially contaminated with chemical agent at BGCAPP will also occur in the MPT under these conditions. To demonstrate achievement of the performance standard, thermal indicators will be applied to munition bodies and other metal parts after liquid agent has been removed. These indicators will be located inside and outside the munition bodies and will change colors or provide other visible indication when the criteria (1000°F) has been achieved.

BGCAPP SCWO units will treat both energetics and agent hydrolysate and effectively mineralize any remaining organics in these wastes. The SCWO has treated (at the scale employed at BGCAPP) industrial wastewater in Japan and agent hydrolysate during tests for the Department of the Army at Corpus Christi, Texas. In both instances, the technology was extremely effective in treating organics. Treatment of the highly corrosive hydrolysate at Corpus Christi produced an effluent that was essentially devoid of any organics (i.e., total organic carbon [TOC] <10 ppm). Establishment of a performance standard and adjustment of operating conditions will occur during RD&D testing associated with the GB agent campaign.

Following SCWO treatment of hydrolysate, the RO system will treat, recover, and recycle (in the SCWO) the majority of the resulting wastewater (approximately 70 percent). BGCAPP will ship the RO reject off-site to appropriately licensed and permitted RCRA facility(s). The RO unit is a proven technology for removing contaminants like salts from water. The Department of the Army and others have repeatedly demonstrated the RO's treatment effectiveness by treating wastewaters ranging from brackish water to industrial waste streams while meeting a wide variety of water quality requirements. RO unit operating conditions and effluent will be evaluated and a performance standard established during RD&D testing associated with the GB agent campaign.

Process integration involves many individual units and systems performing together to achieve the desired goal of final munitions demilitarization and agent/energetics destruction. This can best be measured by the successful completion of the deliberate ramping up of munitions processing during the GB campaign to the successful demonstration test at full rate. This full scale demonstration will be accompanied by the achievement of compliance limits demonstrating 99.9999 percent DRE at the exit of hydrolysate from the ANRs. These two components (achievement of full scale throughput and attainment of the 99.9999 percent DRE) will demonstrate that all individual processes are working as designed from the onset of munitions processing in the ANS to waste streams exiting the RO unit.

Additional operating details for the miscellaneous units will include:

- GB Nerve Agent Munitions – GB 8-Inch Projectile (no energetics are associated with this munition)
    1) Remove the pallet of projectiles from the EONC.
    2) Load the projectiles onto a tray.
    3) Convey the tray to the NCR and MWS.
    4) Via robot, transfer each individual projectile to the NCRS and remove the lifting plug from the nose.
    5) Via robot, transfer the individual projectiles from the NCRS and load them into the MWS module, nose-down.

6) Hydraulically collapse the burster well into the projectile's agent cavity.
7) Gravity-drain the agent through the nose of the projectile.
8) Wash out the agent cavity using high pressure water.
9) Send the drained agent and washout water to storage tanks in the agent neutralization room.
10) Replace each washed munitions body into its tray.
11) Convey the tray of washed projectiles to the MPT for thermal treatment.

- GB 8-inch Leaking Munition Processing Sequence
  1) The overpacked GB projectiles will be removed from the EONC in the UPA.
  2) The munition will be transferred to the TMA where they will be manually unpacked and placed on a tray on the conveyor system for processing through the MWS.
  3) The empty overpack containers will be taken to the TMA for chemical decontamination or thermal decontamination in the MPT prior to offsite recycling or disposal at a permitted TSDF.
- GB M55 Rockets – Nonleakers
  1) Remove the pallet of rockets from the EONC (UPA).
  2) Place each rocket individually onto the rocket input assembly, which conveys it through the airlock to the ECV and to the VRCM. The RCM separates the rocket into three pieces: the warhead, the warhead's SFT, and the RM.
  3) Transfer the RM (still contained in its section of the SFT) through an airlock with monitoring to a container for further treatment at another location on BGAD or an offsite TSDF; RMs with confirmed agent detection in the airlock will not be transferred but will be managed with leaker rockets.
  4) Transfer the warhead's SFT through an airlock with monitoring to a container for disposal at a permitted Toxic Substances Control Act (TSCA) landfill; SFTs with confirmed agent detection in the airlock will not be transferred but will be managed with leaker rockets.
  5) Convey the rocket warhead to the punch-and-drain station of the RSM in the ECR.
  6) Punch holes in the top and bottom of the rocket warhead agent cavity with the punch-and-drain station.
  7) Drain the agent through the lower clamp. Send the drained agent into an agent storage tank in the agent neutralization room.
  8) Send the warhead to the crimp station where the warhead is placed ionto a container and sealed.
  9) The warhead is placed into a skid on a conveyor for transfer to the airlock for agent monitoring.
  10) After clearing agent monitoring, the skids of warheads are ready for transport to storage or processing at the SDC facilities.

- GB M55 Rockets – Leakers –Leakers will be overpacked and processed at the SDC facilities.

1) Wood Pallets – Wood pallets not exposed to a leaking munition will not be processed through BGCAPP and will be managed by appropriate methods to promote waste minimization. The quantity of agent-contaminated wood pallets and miscellaneous non-contaminated dunnage is reflected on the Part A Application. All pallets and other dunnage associated with leaking munitions will be tested following Department of the Army approved methods. If these are contaminated, these will be treated by chemical decontamination. The decontaminated wastes will be managed by appropriate means to minimize waste. If chemical decontamination does not prove successful, the contaminated material will be treated in the MPT.
2) Agent-Contaminated Plastic and PPE – Plastic materials that are not contaminated with agent will be managed by appropriate methods to promote waste minimization without any further treatment at BGCAPP. Plastic and PPE will be assumed to be contaminated if these have been exposed to agent. Agent-contaminated plastic material (e.g., personnel protective ensembles, aprons, and gloves) generated during the RD&D program will be chemically decontaminated. If chemical decontamination is not successful, the material will be treated in the MPT. The decontaminated residue will be sent off-site to a permitted TSDF for treatment/disposal.
3) Miscellaneous Agent-Contaminated Metal Parts and Other Materials (e.g., banding, pumps, and pipe) – Metal material and parts and other materials not contaminated with agent will be appropriately managed to minimize waste without any further treatment at BGCAPP. Agent-contaminated metal material and parts and other materials generated during the RD&D program will be chemically decontaminated using either 1% or 18% caustic solutions, depending on the extent of contamination, with the decon solution managed in the SDS system. If chemical decontamination is not successful or efficient, the material will be treated in the MPT. The decontaminated residue will be appropriately managed to minimize waste.
4) Spent Activated Carbon – Agent-contaminated spent activated carbon will be shipped off-site for further treatment and disposal at a permitted TSDF. Spent activated carbon not contaminated with agent will be managed to minimize waste.
5) SDS – SDS that is generated during the RD&D program will be processed as follows:
6) The SDS from sumps in the Category A or Category B areas will be pumped to the SDS storage tanks. Liquid in the sumps in the Category C areas will be characterized and, based on the results of the characterization, the sumps will either be pumped to the SDS storage tanks or will be managed based on concentration levels consistent with waste criteria established by the United States Army Public Health Command (USAPHC) Chemical Agent Health-Based Standards and Guidelines Summary Table 2: Criteria for Water, Soil, Waste, as of July 2011 (attached in Appendix D4).
7) The SDS in the SDS tanks will be sampled and analyzed to verify it meets the USAPHC guidelines for agent. Additional detail regarding characterization for other hazardous constituents is addressed in the WAP.

    a. If the agent concentration is below the guideline levels for agent, the SDS will be sent to the HSA for further treatment in the SPB.

b. If the residual agent concentration is above the guideline levels for agent, the SDS in the SDS tank will be treated with caustic and resampled or sent to the ANRs for further treatment.

8) In the event of an alarm from a sump in a Category A or Category B area, the control room would initiate an investigation via CCTV to determine if an active leak was going to the sump in alarm. If this investigation reveals that a leak is present, a Maximo work package will be developed and executed to investigate the alarm further and determine the cause of the leak, as well as an evaluation of the interstitial probe. This investigation would include an evaluation of the operating record to identify the last time the sump was used and the associated activity that may have contributed to the leak.

NOTE: Historically, leak detection system activation has often been due to sensitivity issues associated with the probe itself.

If the investigation reveals that the probe is not the issue, the investigation would continue and likely include a visual investigation of the interstitial space with a borescope to determine the location of the leak.

a. If no leak is found, the secondary containment system would be determined to be acceptable and the probe would be replaced.

b. If a leak is found, the secondary containment system would be determined to be unacceptable and process operations in the affected area will be evaluated for suspension until necessary repairs can be made. If repairs are required, the tank would be emptied as expeditiously as possible and removed from service until the repairs have been completed.

Category C and D sumps and those other sumps located outdoors will be characterized per the materials or wastes stored in the affected areas before any liquids in the sump and containments are disposed of. Most Category C sumps are piped to allow pumping into the SDS. Those sumps not tied into the SDS system will be pumped manually for proper disposal per the results of the assessment or characterization of the liquids in the sump and associated secondary containment.

9) In the event of a sump pump failure, the control room would initiate an investigation via CCTV to verify that the sump contents were not being pumped. A Maximo work package would be developed for pump repairs. In the event the sump had liquid and the sump pump was inoperable, the entrants would take a portable pump into the area and transfer the contents out of the sump. If the sump pump replacement could not be accomplished immediately, the portable pump would remain in the sump until repairs are completed. Following the sump replacement, a function test would be successfully performed and the sump would be returned to normal operations.

NOTE: At no time during this evolution would the tank itself be removed from service, as the requisite secondary containment provided by the sump and associated containment area remains available at all times.

D-9a(2)(d) Maintenance, Monitoring and Inspection Information

Inspections of the BGCAPP waste storage and treatment tanks, Subpart X systems, and the container storage areas—including containers/tanks/Subpart X systems, containment, safety, emergency, and operating equipment needed to prevent, detect, or respond to environmental or human health hazards—will be performed in accordance with the Facility Inspection Plan, which is currently a Compliance Schedule Item requiring submission. Maintenance and monitoring will be conducted in accordance with SOPs developed for these activities. Maintenance and monitoring safety issues will also be addressed in the Facility Inspection Plan, such as mitigation requirements to minimize exposure to electromagnetic fields due to the induction coils of the MPTs as well as temperatures near the MPTs in Room 07-146; many of these requirements will be identified during systemization activities.

D-9a(2)(e) Safety Features

Appendix F-1 provides a hazard analysis of the Subpart X systems addressing waste feed controls, fire suppression, pressure relief, and other unit specific hazards.

D-9a(2)(f) Closure

Part I of this Permit Application provides a proposed schedule and procedure for RCRA closure of these units.

D-9a(3) Effectiveness of Treatment [401 KAR 38:230, Section 1 & 40 CFR 270.23(d)]

All treatment units associated with the permit are clean closed or inactive and undergoing closure. The two remaining active units, WTS and CSF are RCRA permitted waste storage units only.

Table D-5: Major NRC Reports Relevant to Destruction of Weapons at BGAD

Report Date	Report Title
NRC 1993	Alternative Technologies for the Destruction of Chemical Agents and Munitions
NRC 1995	Review of Alternative Chemical Disposal Technologies
NRC 1999	Review and Evaluation of Alternative Technologies for Demilitarization of Assembled Chemical Weapons
NRC 2000	Evaluation of Demonstration Test Results of Alternative Technologies for Demilitarization of Assembled Chemical Weapons, a Supplemental Review for Demonstration II
NRC 2000a	Integrated Design of Alternative Technologies for Bulk-Only Chemical Agent Disposal Facilities
NRC 2001	Analysis of Engineering Design Studies for Demilitarization of Assembled Chemical Weapons at Pueblo Chemical Depot
NRC 2001a	Disposal of Neutralent Wastes
NRC 2002	Analysis of Engineering Design Studies for Demilitarization of Assembled Chemical Weapons at Blue Grass Army Depot, 2002
NRC 2002a	Update Engineering Design Studies for Demilitarization of Assembled Chemical Weapons at Blue Grass Army Depot
NRC 2004	Effects of Degraded Agent and Munition Anomalies
NRC 2005	Interim Design Assessment for the Blue Grass Chemical Agent Destruction Pilot Plant
NRC 2006	Review and Assessment of the Proposals for Design and Operation of Designated Chemical Agent Destruction Pilot Plants
NRC 2007	Review of Chemical Agent Secondary Waste Disposal and Regulatory Requirements
NRC 2008	Review and Assessment of Developmental Issues Concerning Metal Parts Treater Design for the Blue Grass Chemical Agent Destruction Pilot Plant
NRC 2008a	Review of Secondary Waste Disposal Planning for the Blue Grass and Pueblo Chemical Agent Destruction Pilot Plants
NRC 2009	Assessment of Explosive Destruction Technologies for Specific Munitions at the Blue Grass and Pueblo Chemical Agent Destruction Pilot Plants
NRC 2011	Assessment of Approaches for Using Process Safety Metrics at the Blue Grass and Pueblo Chemical Agent Destruction Pilot Plants
NRC 2012	The Blue Grass Chemical Agent Destruction Pilot Plant's Water Recovery System
NRC 2012a	Assessment of Agent Monitoring Strategies for the Blue Grass and Pueblo Chemical Agent Destruction Pilot Plants
NRC 2012b	Disposal Options for the Rocket Motors from Nerve Agent Rockets Stored at Blue Grass Army Depot
The NRC reports are available for purchase or download at www.nap.edu.	

D-9a(3)(a) Justification for Research

The BGCAPP ultimately will destroy all chemical weapons at the BGAD using alternative technologies. NRC panels reviewed the results of previous evaluations of alternative technologies in a series of reports listed in Table D-5: Major NRC Reports Relevant to Destruction of Weapons at BGAD6 and, in its last report, identified GATS as the most mature alternative process for use at the BGAD. The report suggested improvements in the design, but indicated that, although all of the individual processes are acceptable for application at the BGAD, RD&D shall be performed to refine and demonstrate the integrated process before going to full operation. The BGCAPP design incorporates the design improvements identified by the NRC, and the BGCAPP RD&D program incorporates this integration research. The final stage of development is the testing and evaluation of the integrated process under a carefully developed RD&D program that is the purpose of this application.

The RD&D program to be conducted at the BGCAPP includes the following goals:

1. Conduct a thorough program of system integration including the conveyance of munitions and munition segments from one treatment location to the next including the MPT treatment and release of the munition parts from the MDB.
2. Demonstrate that 99.9999 percent DRE of GB agent can be achieved.
3. Demonstrate that the energetics can be treated in the EBHs and the ENS.
4. Demonstrate that the MPT will thermally treat projectile bodies and solid residue from the EBH to a minimum of 1000°F for a minimum of 15 minutes (i.e., the Department of the Army treatment standard for chemical agent destruction).
5. Demonstrate the performance of the SCWO reactor system.

The RD&D program described in this application is being conducted to demonstrate the agent and energetics destruction capabilities of the BGCAPP integrated process. As data are obtained from both ongoing equipment design and testing programs, data are fed back to the BGCAPP team so that the information can be used to improve and validate the plant processes. This data feedback will continue during the RD&D demonstration phase. However, no changes will be made that may increase risk or environmental releases, and the expected outcome of the RD&D program will be further reductions in risk.

The present permit application requests approval for the BGCAPP to be built and operated as a full-scale pilot plant to conduct a demonstration of the agent and energetics destruction capabilities as integrated plant processes. Much of the RD&D program will not involve hazardous wastes; the initial tests will be performed using simulants and surrogate materials. After the overall plant's performance, safety, environmental acceptability, and reliability have been established, the RD&D program will progress to initially include small amounts of agent; after demonstrated performance, increasingly larger amounts of agent and chemical munitions will be processed. At the conclusion of the research, the facility will have demonstrated that it is capable of operating at full capacity and the remainder of the stockpile will be processed under a Part B permit.

The information that is included in the RD&D permit compliance schedule (Appendix A of the draft RD&D permit provided as a supplement to this application) includes the additional information that would be required in a Part B permit application for a hazardous waste treatment facility. Therefore, the submission of the compliance schedule items will be used for the completion of a Part B permit application.

The performance test is the transition from operation under the RD&D permit to operation under the full RCRA Part B permit with activities prior to and including the performance test occurring under the RD&D permit.

D-9a(3)(b) System Integration

A thorough program of system integration including the conveyance of munitions and munition components from one part of the treatment process to the next, up to and including the release of the munition residue from the MDB, shall be demonstrated as part of RD&D testing. System integration has two components:

1) Ability of the equipment to function as one unit with the actual wastes.

2) Maximizing the operators' proficiency under safe operating conditions.

Optimizing the operators' proficiency under carefully controlled and supervised conditions has traditionally not been considered as RD&D. However, such human factors research is essential to maximize safety and protect the environment; hence it has been made an important component of the BGCAPP RD&D process. Before hazardous waste (agent) operations begin, the operators will be thoroughly trained in their duties and responsibilities through coursework, simulations, and actual hands-on experience with simulated munitions. ACWA test equipment (ATE) munitions will be constructed to have physical dimensions that are similar to the actual munitions, but these do not contain the chemical agent and energetics.

However, only operations conducted with actual munitions can provide the required operator experience and proficiency to verify the process fully addresses human factors and, therefore, minimizes risk to human health and to the environment. The proficiency in handling and processing actual chemical munitions can only be achieved through slow and deliberate step rate changes in which the operators handle the actual munitions at initially very low rates with heightened direct supervision by management and system engineers. As the operators gain experience, the processing rates will be increased.

To ensure increased oversight by management and systems engineers, initial munition processing will occur only on the day shift. Night shift activities will concentrate on preventive and corrective maintenance activities, monitoring the EBH neutralization process, and pre-staging of munitions for the next day of operations. The step changes in processing rates will typically be scheduled at 4-week intervals to ensure each of the four rotating operations shifts have an opportunity to process munitions on day shift. The step rate changes also will provide a logical progression that fosters systematic improvements in operator proficiency. The RD&D demonstration phase with agent munitions is required to demonstrate that the integrated BGCAPP facility and operators can proficiently process actual munitions as compared to the simulated munitions used in systemization. The step rate changes will also allow protection of human health and the environment to be verified.

1. Justification for Conducting with Hazardous Waste – To establish successful system integration, all BGCAPP subsystems shall operate as an integrated facility. This requires the processing to include agent, agent hydrolysate, energetics, energetics hydrolysate, munition components, dunnage, and secondary waste. Appropriate development of this process integration requires the processing of real munitions unique to BGAD.

2. Measurements and Observations Required – Process integration will be considered to have been achieved if the facility successfully operates at the peak munitions processing rate. Process integration is the overarching objective: it demonstrates the facility and operators can achieve the necessary results when operating as a unit and when treating the actual hazardous wastes at the peak processing rate.

3. Safety and Environmental – Maximum safety and environmental protection will be achieved by performing this verification at an initially very slow rate during weeks 1 through 4 and stepwise increases in the processing rate as information is gathered. This slow ramp-up will ensure adequate time to properly evaluate the agent and energetic destruction results and to verify the operators' levels of knowledge and performance ensure safe operation.
4. Success Criteria – Process integration will be considered successful at each ramp up rate when all operators are assessed to be proficient at their functions, and all exit streams meet the safety and environmental requirements as discussed in the following subsections.

D-9a(3)(c) Demonstrate 99.9999 Percent DRE for GB

Demonstration that 99.9999 percent DRE can be achieved for GB agent as required by KRS 224.50-130 and 401 KAR 34:350 shall be achieved as part of RD&D pilot testing.

1. Justification for Conducting Operations with Hazardous Waste – Agent hydrolysis has been demonstrated to achieve the requisite 99.9999 percent DRE for GB in the previous testing conducted by the PEO ACWA. Agent destruction at the BGCAPP shall be demonstrated using the BGCAPP equipment with the BGAD munitions as required by KRS 224.50-130(3)(a). This only can be demonstrated by conducting tests with the chemical agent (i.e., state listed hazardous waste).
2. Measurements and Observations Required – The GB drained from the munitions will be stored in the ACS until a sufficient quantity of agent has been accumulated for processing in the ANR. The agent will then be transferred from the ACS to an ANR for hydrolysis and the hydrolysate will be analyzed for GB. Rocket segments and energetics will be transferred to the EBHs and EBH effluent to the ENRs, with energetics hydrolysate from the ENRs also analyzed for GB. Based on effluent concentrations from the ANRs and ENRs and MDB HVAC stacks, the DRE can then be calculated as required by KRS 224.50-130. The number of batches to be tested in this way will be established in the test plan, which will be submitted in accordance with the BGCAPP's compliance schedule.
3. Safety and Environmental – The hydrolysate batches processed in the ANRs will not be released from the MDB until the analytical results demonstrate the target release level has been met. The ANR vents to the MPT OTM and then to the MDB HVAC filter system before release to the atmosphere. These multiple layers of protection will provide a high degree of safety and protection to the environment. A slow start of operation (as specified in the test plan) maximizes personnel safety and protection of the environment by minimizing the amount of agent in process while the initial batch of agent is neutralized.
4. Success Criteria – The process meets the 99.9999 percent DRE as required by KRS 224.50-130.

D-9a(3)(d)° Demonstrate MPT's Ability to Treat Projectiles

Demonstration that the MPT can thermally treat batches of projectile bodies to a minimum of 1000°F for a minimum of 15 minutes shall be achieved as part of RD&D studies.

a. Justification for Conducting with Hazardous Waste – TRRP testing with ATE munitions have demonstrated the MPT can thermally treat a full tray of projectiles to a minimum of 1000°F for a minimum of 15 minutes. Thermal treatment in the MPT shall be demonstrated to verify the previous results with actual munitions from the BGAD stockpile.

b. Measurements and Observations Required – Temperature measurements will be performed to confirm the temperature profile previously demonstrated during systemization. Thermal indicators will be used to ensure 1000°F will have been maintained for at least 15 minutes in accordance with DA performance standards for agent destruction.

c. Safety and Environmental – Slow initial operating rates will ensure all material in the MPT achieves the appropriate temperature before it is removed from the MPT. The batch nature of the operation will allow the time per batch or the power input to be increased to establish the operating conditions necessary to ensure proper decontamination of the metal. Air pollution will be controlled for MPT off-gas by discharge through the OTM and then through the MDB HVAC filtration system.

d. Success Criteria – Verify by temperature measurements of the treated munition bodies that the projectile carcasses in the first trays of material have been exposed to a minimum of 1000°F for a minimum of 15 minutes. This will be accomplished by the use of thermal indicators on the munition bodies.

D-9a(4) Disposal Units [401 KAR 38:230, Section 1, 34:250, Section 4 & 40 CFR 270.23(a) and 264.603]

Not applicable. The BGCAPP facility does not include any disposal units.

D-9b Waste Characterization, A Description of the Wastes To Be Treated [401 KAR 38:230, Section 1, and 34:020, Section 4 & 40 CFR 270.23, 264.13 (b), and 264.601(a)(1), (b)(1), (c)(1)]

Part C1 presents descriptions of the wastes managed at the BGCAPP facility and the analyses used to characterize these wastes.

D-9c Assessment of the Units [401 KAR 38:230, Section 1, 34:250, Sections 2–3, and 34:190, Section 3 & 40 CFR 270.23 (a) (2), 264.601, 264.602, and 264.192]

The basis of design for the components of the miscellaneous Subpart X treatment units, as well as the BGCAPP facility as a whole, includes the characteristics of the waste managed, the loads imposed on the foundation, and seismic standards. Project PEs review and certify the units and ancillary equipment as meeting the appropriate construction standards, including sufficient structural strength and compatibility with the waste treated; ensuring the systems do not collapse, rupture, or fail. Factors considered in this design review:

1. Characteristics of the waste to be handled
2. Standards to which the unit was constructed
3. Loads imposed on the foundation
4. Whether the miscellaneous unit is placed in a saturated zone or is located within a seismic fault zone
5. Frost heave
6. Soundness of the unit and its ancillary equipment in preventing releases.

In addition, as discussed in section D-3, the assessment of adequacy of the tank systems design, into which Subpart X treatment units will be incorporated, was performed by an independent PE and the resulting TARs were submitted to KDEP for review and approval prior to starting installation of each hazardous waste tank system. All tanks that recently have been identified as Subpart J-regulated tank systems currently are undergoing a TAR review and preparation by the TAR subcontractor. These TARs will be provided to KDEP upon their completion.

D-9d Secondary Containment and Detection of Releases [38:230 Section 1, 34:190, Sections 3 and 4, and 34:250, Section 2 & 40 CFR 270.23(e), 264.192, 264.193, 264.601, and 270.23(e)]

All miscellaneous treatment units that handle wastes with free liquids are inside secondary containments inside the MDB or SPB; secondary containment in these facilities is discussed in section D-3.

All of the miscellaneous units are located indoors, are not exposed to precipitation, and do not receive runoff from precipitation.

D-9d(1) No Free Liquids [401 KAR 38:230, Section 1 and 40 CFR 270.23(e)]

Wastes without “free liquids” are maintained in a closed environment (e.g., the MDB or SPB or in containers that prevent wind dispersion of waste during conveyance or during production of waste residue during the treatment process (e.g., filter press cake generation). See section D-2a for a discussion of the procedures used to prevent the wind dispersion of wastes and residues (i.e., closed containers, opened only to add, remove or otherwise manage the waste within the containers). The BGCAPP facility uses the same procedures to manage wastes in miscellaneous Subpart X treatment units.

D-9e Assessment of the Operation of the Unit [401 KAR 38:230, Section 1, and 34:250, Section 2 & 40 CFR 270.23(b) and 264.601]

This section addresses the BGCAPP facility from the perspective of protection of public health, the environment, and safety of facility personnel.

D-9f Site Assessments [401 KAR 38:230, Section 1 & 40 CFR 270.23(b)]

Paragraphs B-2 and B-3a provide assessments of the hydrology, geology, and meteorology associated with the Subpart X units in this application; land use maps for the BGCAPP and the BGAD are provided in Figure B-3.

D-9g Potential Exposure Pathways [401 KAR 38:230, Section 1 & 40 CFR 270.23(c)]

The HHRA was previously provided to KDEP and lists the potential exposure pathways for human and environmental receptors and assesses the potential magnitude and nature of potential exposures.

D-9h Additional Information [401 KAR 38:230, Section 1, & 40 CFR 270.23e]

The HHRA evaluates and discusses the air emissions and reductions provided by the BGCAPP design. Noise from the BGCAPP 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 may exceed Occupational Safety and Health Administration (OSHA) permissible exposures limits, but BGCAPP provides workers with suitable hearing protection and medical surveillance.

D-9i Requirements Specific to OB/OD Units or Geologic Repositories Used for Storage/Treatment of Hazardous Waste [401 KAR 38:230, Section 1 and 40 CFR 270.23]

Not applicable. BGCAPP does not use open burning/open detonation (OB/OD) or geologic repositories for storage/treatment of any hazardous wastes.

D-9j REFERENCES

BGCAPP, *BGCAPP Throughput and Availability Analysis*, 24915-000-U3A-00-00001, Rev. 8, 3 December 2015.

U.S. Army Public Health Command, *Public Health Notice, Chemical Agent Health-Based Standards and Guidelines Summary Table 2: Criteria for Water, Soil, Waste, as of July 2011.*

D-10 Organic Air Emissions [401 KAR 34:275, 401 KAR 34:280, 401 KAR 34:281, and 40 CFR §§264.1030, §§264.1050, and §§264.1080]

The BGCAPP facility will comply with applicable requirements for control of organic air emissions in accordance with 40 CFR §§264.1030 (Subpart AA), §§264.1050 (Subpart BB), and §§264.1080 (Subpart CC); this compliance will also satisfy 401 KAR 34:275, 401 KAR 34:280, and 401 KAR 34:281 requirements.

D-10a: 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.

The BGCAPP Main Plant facility will not contain any process vents regulated under Subpart AA.

D-10b: Subpart BB

There are no pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges and other connectors which contain or contact hazardous waste streams with greater than or equal to 10 percent by weight (wt%) total organics (40 CFR §264.1050).

All units and systems previously permitted and subject to subpart BB are inactive and being closed at the time of this submission. The following information in this section is included as reference for closure: Treatment processes at the BGCAPP Main Plant with equipment that will contain or contact hazardous waste streams include the following:

- The Munitions Washout System (MWS)
- Rocket Handling System (RHS)
- Agent Collection System (ACS)
- Spent Decontamination System (SDS)
- Agent Neutralization System (ANS)
- Metal Parts Treater (MPT) System
- OTM common vent system (OTMC)
- OTM Off-gas Treatment System (OTM)
- Hydrolysate Storage Area (HSA) tank system for agent hydrolysate
- Hydrolysate Storage Area (HSA) tank system for energetics hydrolysate

Each of these systems are described in sections D-1 and D-9.

Per material and energy balances (M&EBs), all or parts of the MWS, RHS, ACS, SDS, ANS, MPT and OTMC systems (and applicable subsystems) will each contact or have the potential to contact greater than or equal to 10 wt% organics at least part of the time. These systems will comply with Subpart BB requirements.

D-10c: Subpart CC

With the exception of container storage at the WTS and CSF storage areas all units and systems previously permitted and subject to subpart CC are inactive and being closed at the time of this submission. The following information in this section related to Volatile Organics associated with treatment operations at BGCAPP is included as reference for closure. Subpart CC under 40 CFR §264.1080 requires air emission controls be used for containers, tanks, and surface

impoundments subject to Subparts I, J, or K which manage hazardous wastes containing an average volatile organic (VO) concentration of greater than or equal to 500 ppm by weight (ppmw) at the point of waste origination or established concentration limits after VO treatment or removal; applicable requirements also apply to Subpart X miscellaneous treatment units (40 CFR §264.601).

Material and energy balances indicate that VO compound concentrations in BGCAPP Main Plant chemical agent GB waste stream, at the point of waste origination (munitions), will contain more than 500 ppmw volatile organics, as will drained agent waste streams, partially treated agent waste streams, and some treated waste streams. Consequently, several container types, tanks, and Subpart X units containing hazardous wastes under the processing conditions of the BGCAPP Main Plant will contain more than 500 ppmw VO concentrations, and these will be subject to Subpart CC requirements unless specifically exempted, including those containing drained chemical agent GB, GB agent hydrolysate, and GB agent hydrolysate/energetics hydrolysate blends. Some hazardous waste streams will meet concentration limits after treatment so that downstream systems will be exempted from Subpart CC requirements. These include those containing TOX effluents and SCWO effluents.

D-10c(1): Containers

A variety of containers will be used in the BGCAPP Main Plant, as indicated in Section D-2. Subpart CC requirements are not applicable to containers with design capacity of less than or equal to 0.1 m^3 per §264.1080(b)(2). Consequently, the following containers discussed in Section D-1are not subject to Subpart CC:

1. Containers with capacity less than 26.4 gallons.

Large roll-off bins with expected volumes of approximately 15.3 to 30.6 m^3 (20 to 40 yd^3) to be used to contain closure debris, metal for recycling, and other solid wastes will only receive treated materials containing less than 500 ppmw VO concentrations and so are exempt from Subpart CC requirements per §264.1082(c)(2)(i), as indicated by M&EBs. In addition, the tanker trucks (typically 5,000 gallons) of Brine Liquids from SDC 1200 and SDC 2000 Off-gas Treatment System (OTS) scrubbers to be stored in the WTS facility prior to shipment are also exempt per §264.1082(c)(2)(i) from Subpart CC requirements since the SDC1200 and SDC2000 are equipped with control devices to provide at least 95% organic removal as required by 40 CFR §264.1087(c)(1).

All other containers used in the BGCAPP Main Plant for permitted storage of waste, with exception of 1.32 m^3 (350 gallon) steel/poly intermediate bulk containers, will have design capacity less than 0.46 m^3 (121.5 gallons) and will be subject to Subpart CC Container Level 1 standards per §264.1086(b)(i). In addition, all 1.32 m^3 (350 gallon) steel/poly intermediate bulk containers will not be in light material service and will only be subject to Subpart CC Container Level 1 standards per §264.1086(b)(ii). No containers will be used for treatment of hazardous waste by a waste stabilization process or have volume greater than 0.46 m^3 and be in light material service.

All containers used in the BGCAPP Main Plant for permitted storage of waste will meet applicable U.S. Department of Transportation (DOT) regulations on packaging hazardous materials for transportation as specified in §264.1086(f), with the exception of in-process containers (e.g., drums used for bag-house dust collection) or suitable air-tight plastic bags being used to support waste monitoring prior to final containerization. All containers in permitted storage will be kept closed except when waste is being added, removed, or accessed for other activity (e.g., sampling) in accordance with §264.1086(c)(3). All containers in permitted storage

will be visually inspected as specified in §264.1086(c)(4) and meet applicable documentation and record-keeping requirements (§264.1086(c)(5).

D-10c(2): Tanks

All previously permitted subpart J tanks and tank systems are currently inactive, information retained for reference during facility closure: The BGCAPP Main Plant will contain a number of tanks which will contain hazardous waste streams with average VO concentrations greater than or equal to 500 ppmw as indicated in material and energy balances, and these tanks will be subject to Subpart CC requirements. Based on size and maximum potential organic vapor pressure, BGCAPP tanks subject to Subpart CC will use either Tank Level 1 controls per §264.1084(b)(1) or Tank Level 2 controls per §264.1084(b)(2). Table D-11 in Appendix D2 indicate the Subpart CC control methods for each tank, and each will meet all Subpart CC requirements. The primary control devices are the TOX units and the MDB HVAC carbon adsorption system.

D-10c(3): Miscellaneous Units

All previously permitted subpart X Miscellaneous Units are currently inactive, information retained for reference during facility closure: Miscellaneous (Subpart X) units that will contact hazardous waste with on average greater than 500 ppmw VO compounds will be managed to comply with applicable Subpart CC tank requirements. Table D-11 in Appendix D2 indicate the Subpart CC control methods for each tank, and each will meet all Subpart CC requirements. The primary Subpart CC control devices are the TOX units and the MDB HVAC carbon adsorption system.

Appendix D1: Container, Tank, Sump, and Miscellaneous Unit Summaries

Table D-6: Container Storage Area Summary

Container Storage Area	Maximum Waste Capacity (gal)	Containment Design	Dimensions	Materials of Construction	Drainage / Container Management	Containment Capacity (gal)	Analysis and Removal of Accumulated Liquids	Testing/ Demonstration of No Free Liquids	Air Emissions Control**
Waste Transfer Station (WTS) – Outside CLA	279,000	Concrete with spill pallets as necessary (sprung structure) Concrete (storage pads, tanker bays)	Sprung structure: ~60' × ~68' Storage pads: ~71' × ~80' & ~30' × ~60' Tanker bays: ~71' × ~300'	Metal frame with fabric shell with concrete floor and spill pallets (WTS storage building), concrete and asphalt (outside areas) with spill pallets, concrete with caulked expansion joints (WTS tanker bays)	WTS storage building: containers with liquids stored on spill pallets WTS outside: area sloped away from stored containers (no free liquids in containers) WTS truck bays: bays sloped toward collection sumps	130,984 (24915-00-TKD-GGPT-10108 RD&D CSI 6)	No run-on in WTS storage building WTS truck bay run-on prevented by diversion drain Liquids in spill pallets or accumulated in WTS truck bays analyzed in accordance with WAP requirements	SW-846 Method 9095 and/or process knowledge	Storage Level 1 Containers that are closed except when adding or removing material
Container Storage Facility (CSF)	49,280	Concrete with spill pallets as necessary	CSF 100' × 50'	CSF: Prefabricated metal building with concrete floor	CSF: containers with liquids stored on spill pallets or in containment lockers with integral containment. Containers stored on pallets	Not applicable (no free liquids stored except on spill pallets or within lockers with integral containment)	No run-on in CSF Liquids in spill pallets or containment lockers analyzed in accordance with WAP requirements	SW-846 Method 9095 and/or process knowledge	Storage Level 1 Containers that are closed except when adding or removing material

Run-On Management: All storage facilities are covered preventing run-on, with exception of the WTS facility, which has a diversion drain.
Ignitable and Reactive Wastes 50 feet from Property Line: All container waste storage facilities are >50 feet from BGAD property line. In addition, open flames and other ignition sources are prohibited near flammable or ignitable waste storage areas.
Separation of Incompatible Wastes: By waste management best practices, incompatible wastes are not commingled in the same container nor stored near each other in the same container storage area without adequate controls.
*Also other containment protection practices as outlined in 24915-00-TKD-GGPT-10036 Equivalent Device Petition
**Subpart CC standards for Level 1 Containers not in light material service are met by use of containers that meet DOT regulations for packaging hazardous materials or a container equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces into the interior of the container

Table D-7: Tank Summary

All previously permitted subpart J tanks and tank systems are currently inactive; the information is retained for reference during facility closure:

Tank System / Tanks*	TAR Document No.**	Feed Systems	Safety Cutoffs	Bypass Systems	Pressure Controls	PFD Document Nos.	P&ID Document Nos.	Construction Materials	Corrosion Protection	Installation****	Secondary Containment	Ignitable, Reactive, Incompatible Waste Compliance***	Air Emissions Control
Agent Collection System (ACS) Tanks													
Agent Holding Tank – MT-ACS-0105	MDB	Pumped from MWS or RHS	LSHH-1513	None	PSV-1625A and PSV-1625B	07-M5-ACS-00001	07-M6-ACS-00003	PVDF Lined C.S.	PVDF Liner	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
Agent Surge Tank – MT-ACS-0106	MDB	Pumped from MWS or RHS	LSHH-1587	None		07-M5-ACS-00001	07-M6-ACS-00002	PVDF Lined C.S.	PVDF Liner	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
Spent Decontamination System (SDS) Tanks													

Tank System / Tanks*	TAR Document No.**	Feed Systems	Safety Cutoffs	Bypass Systems	Pressure Controls	PFD Document Nos.	P&ID Document Nos.	Construction Materials	Corrosion Protection	Installation****	Secondary Containment	Ignitable, Reactive, Incompatible Waste Compliance***	Air Emissions Control
MV-SDS-0101	MDB	Pumped from sumps	LSHH-1757A	None	PSV-1749A	07-M5-SDS-00001	07-M6-SDS-00001	PVDF Lined C.S.	PVDF Liner	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
MV-SDS-0201	MDB	Pumped from sumps	LSHH-1757B	None	PSV-1749B	07-M5-SDS-00001	07-M6-SDS-00002	PVDF Lined C.S.	PVDF Liner	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
MV-SDS-0301	MDB	Pumped from sumps	LSHH-1757C	None	PSV-1749C	07-M5-SDS-00001	07-M6-SDS-00003	PVDF Lined C.S.	PVDF Liner	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
Agent Neutralization Reactor (ANR) Tanks													
MV-ANS-0101	MDB	Pumped from ACS	LSHH-2130A	None	PSE-2134A	07-M5-ANS-00001	07-M6-ANS-00001	UNS N10276	UNS N10276	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
MV-ANS-0201	MDB	Pumped from ACS	LSHH-2130B	None	PSE-2134B	07-M5-ANS-00001	07-M6-ANS-00002	UNS N10276	UNS N10276	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
Agent Hydrolysate Sampling Tanks													
MT-ANS-0103	MDB	Pumped from ANS	LSHH-2191A	None	PSV-2198A	07-M5-ANS-00002	07-M6-ANS-00011	316L S.S.	0.063' Corrosion Allowance	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
MT-ANS-0203	MDB	Pumped from ANS	LSHH-2191B	None	PSV-2198B	07-M5-ANS-00002	07-M6-ANS-00012	316L S.S.	0.063' Corrosion Allowance	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
MT-ANS-0303	MDB	Pumped from ANS	LSHH-2191C	None	PSV-2198C	07-M5-ANS-00002	07-M6-ANS-00013	316L S.S.	0.063' Corrosion Allowance	Vertical	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to TOX
Hydrolysate Collection Tank													
MT-EBH-1901	MDB/SPB ADDENDUM	Gravity Drain from EBHs	LSHH-9202	None	Overflow to Sump	07-M5-EBH-00001	07-M6-EBH-01085	UNS S32205	UNS S32205	Vertical	Equivalency Pet See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Yes	Subpart CC vents to HVAC Activated Carbon
Agent Hydrolysate HSA Tanks													
MT-HSS-0105 (GB only)	HSA	Pumped from Agent Hydrolysate Sampling Tanks	LSHH-0071A	None	PSV-0082A	11-M5-HSS-00001	11-M6-HSS-00004	Carbon Steel	0.125" Corrosion Allowance	Vertical	40 CFR 264.193(d)(1), 40 CFR 264.193(e)(1)	Yes	Subpart CC vents to HVAC Activated Carbon
MT-HSS-0205 (GB only)	HSA	Pumped Agent Hydrolysate Sampling Tanks	LSHH-0071B	None	PSV-0082B	11-M5-HSS-00001	11-M6-HSS-00007	Carbon Steel	0.125" Corrosion Allowance	Vertical	40 CFR 264.193(d)(1), 40 CFR 264.193(e)(1)	Yes	Subpart CC vents to HVAC Activated Carbon
Energetics Hydrolysate HSA Tanks													
MT-HSS-0604	HSA	Pumped from ENRs	LSHH-0121A	None	PSV-0146A	11-M5-HSS-00002	11-M6-HSS-00010	Carbon Steel	0.125" Corrosion Allowance	Vertical	40 CFR 264.193(d)(1), 40 CFR 264.193(e)(1)	Yes	Subpart CC vents to HVAC Activated Carbon

Tank System / Tanks*	TAR Document No.**	Feed Systems	Safety Cutoffs	Bypass Systems	Pressure Controls	PFD Document Nos.	P&ID Document Nos.	Construction Materials	Corrosion Protection	Installation****	Secondary Containment	Ignitable, Reactive, Incompatible Waste Compliance***	Air Emissions Control
MT-HSS-0704	HSA	Pumped from ENRs	LSHH-0121B	None	PSV-0146B	11-M5-HSS-00002	11-M6-HSS-00012	Carbon Steel	0.125" Corrosion Allowance	Vertical	40 CFR 264.193(d)(1), 40 CFR 264.193(e)(1)	Yes	Subpart CC vents to HVAC Activated Carbon
RO Reject Tanks													
MT-RO-0106	SPB	Pumped from RO units	LSHH-0150A	None	Overflow to Secondary Containment	10-M5-RO-00001	10-M6-RO-00010	Carbon Steel with Epoxy Lining	Epoxy Lining	Vertical	40 CFR 264.193(d)(1), 40 CFR 264.193(e)(1)	Yes	None Required (Due to SCWO Treatment)
MT-RO-0206	SPB	Pumped from RO units	LSHH-0150B	None	Overflow to Secondary Containment	10-M5-RO-00001	10-M6-RO-00011	Carbon Steel with Epoxy Lining	Epoxy Lining	Vertical	40 CFR 264.193(d)(1), 40 CFR 264.193(e)(1)	Yes	None Required (Due to SCWO Treatment)
RO Permeate Tanks													
MT-SWS-0101	SPB	Pumped from RO units	LSHH-0481A	None	Overflow to Secondary Containment	10-M5-RO-00001	10-M6-RO-00016	Carbon Steel with Epoxy Lining	Epoxy Lining	Vertical	40 CFR 264.193(d)(1), 40 CFR 264.193(e)(1)	Yes	None Required (Due to SCWO Treatment)
MT-SWS-0201	SPB	Pumped from RO units	LSHH-0481B	None	Overflow to Secondary Containment	10-M5-RO-00001	10-M6-RO-00016	Carbon Steel with Epoxy Lining	Epoxy Lining	Vertical	40 CFR 264.193(d)(1), 40 CFR 264.193(e)(1)	Yes	None Required (Due to SCWO Treatment)

**For Tank Dimensions, see Table D-4, and for Maximum Waste Volume and Spill and Overflow Protection, see Table D-3.
**TARs: MDB - 24915-8H4-V14-H000-00007 and 24915-8H4-V14-H000-00014
MDB/SPB ADDENDUM - 24915-8H4-V14-H000-00002
HSA - 24915-00-TAD-GGPT-00069
SPB - 24915-00-TAD-GGPT-00051
***Incompatible wastes will not be stored together in tanks. Restrictions will be placed on flames or other ignition sources near flammable or ignitable wastes. Nitrogen blankets will be used to prevent the formation of flammable environments in tank headspaces. Off-gases from the EBHs will be monitored for hydrogen as described in Section 8a(1)(j).
****Additional installation information required by [40 CFR 270.16 (f)] will be provided in Tank Installation Certifications and Facility Construction Certifications to be provided as CSIs.
‡ Not shown on PFD because it is not normally used

Table D-8: Sump Summary

All previously permitted subpart J tanks and tank systems are currently inactive, the information is retained for reference during facility closure:

Category A Sumps:	**MDB**									
Sump No.		**Room No.**	**Location**	**Pumped?**	**Volume**	**Foundation/Grade**	**P&ID No.**	**Type of**	**Type of**	**Discharges to**
					(gal)	**Drawing No.**		**Containment**	**Liquid Alarm(s)**	
SDS-0131		07-104	ECR 1	Yes	84.2	07-DB-00-00221	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0134		07-105	ECR 2	Yes	84.2	07-DB-00-00221	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0136		07-111	EBH	Yes	84.2	07-DB-00-00221	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0138		07-106	ECV 2	Yes	84.2	07-DB-00-00220	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0141		07-135	MWS	Yes	84.2	07-DB-00-00231	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0143		07-125	TMA	Yes	84.2	07-DB-00-00230	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0144		07-125	TMA	Yes	84.2	07-DB-00-00230	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0145		07-125	TMA	Yes	84.2	07-DB-00-00225	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0147		07-120	DPE Cor	Yes	84.2	07-DB-00-00227	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0148		07-123	ANS	Yes	84.2	07-DB-00-00228	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0149		07-123	ANS	Yes	84.2	07-DB-00-00227	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0151		07-109	Airlock	Yes	84.2	07-DB-00-00217	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0152		07-103	ECV 1	Yes	84.2	07-DB-00-00220	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0174		07-136	Airlock	Yes	84.2	07-DB-00-00231	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0175		07-132	Airlock	Yes	84.2	07-DB-00-00230	07-M6-SDS-00006	Primary	Sump and Liner	Spent Decon Tanks
SDS-0135		07-107	Airlock	Yes	84.2	07-DB-00-00217	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0165		07-119	ENS	Yes	84.2	07-DB-00-00222	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0166		07-119	ENS	Yes	84.2	07-DB-00-00222	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0167		07-126	Airlock	Yes	84.2	07-DB-00-00225	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0170		07-124	TCTR	Yes	84.2	07-DB-00-00226	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0171		07-124	TCTR	Yes	84.2	07-DB-00-00226	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0173		07-146	MPT	Yes	84.2	07-DB-00-00236	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0177		07-133	TMA Equip	Yes	84.2	07-DB-00-00230	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0178		07-124	TCTR	Yes	84.2	07-DB-00-00226	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0182		07-163	MPR	Yes	84.2	07-DB-00-00216	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0184		07-142	Airlock	Yes	84.2	07-DB-00-00231	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0201		07-113	EBH Suppt	Yes	84.2	07-DB-00-00222	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0228		07-162	Airlock	Yes	84.2	07-DB-00-00216	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0235		07-146	MPT	Yes	84.2	07-DB-00-00236	07-M6-SDS-00007	Primary	Sump and Liner	Spent Decon Tanks
SDS-0154		07-137	OBS Cor	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0168		07-144	OBS Cor	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0169		07-118	SHT	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0176		07-129	Transfer	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0180		07-148	Washout	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0181		07-148	Washout	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0190		07-101	UPA 1	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0191		07-101	UPA 1	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks

SDS-0198		07-121	ANS G Box	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0200		07-117	OBS Cor	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0202		07-102	EONC Lkr	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0220		07-118	SHT	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0222		07-128	UPA 2	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0223		07-128	UPA 2	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0227		07-203	EBH Suppt	Yes	82.9	07-DB-00-00375	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0229		07-140	OTE	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0230		07-140	OTE	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0231		07-140	OTE	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0232		07-140	OTE	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0233		07-140	OTE	Yes	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
SDS-0185		07-134	UPA Eq Rm	No	82.9	07-DB-00-00368	07-M6-SDS-00008	Secondary	Sump	Spent Decon Tanks
NCD-0230		07-141	OTM	Yes	82.9	07-DB-00-00368	07-M6-NCD-00001	Secondary	Sump	Drums, Storm Drains, or HSS
NCD-0231		07-141	OTM	Yes	82.9	07-DB-00-00368	07-M6-NCD-00001	Secondary	Sump	Drums, Storm Drains, or HSS
NCD-0232		07-141	OTM	Yes	82.9	07-DB-00-00368	07-M6-NCD-00001	Secondary	Sump	Drums, Storm Drains, or HSS
NCD-0235		07-150	MPT Disch	No	82.9	07-DB-00-00368	None	Secondary	None	Drums
NCD-0236		07-150	MPT Disch	No	82.9	07-DB-00-00368	None	Secondary	None	Drums
NCD-0233		07-164	Mtr Pcking	No	82.9	07-DB-00-00368	None	Secondary	None?	Drums
Category D Sumps:	**SPB**									
Sump No.		**Area No.**	**Location**	**Pumped?**	**Volume**	**Foundation/Grade**	**P&ID No.**	**Type of**	**Type of**	**Discharges to**
STA		10-16	STA	Yes	82.9	10-DB-00-00050	10-M6-RO-00014	Secondary	None	Storm Drains, Drums
RO Heat Exchanger		10-14	RO HX	No	3.7	10-DB-00-00049	None	Secondary	None	Storm Drains, Drums
Truck Load		10-17	Truck Load	Yes	75.7	10-DB-00-00064	10-M6-RO-00012	Secondary	None	Storm Drains, Drums
Category D Sumps:	**HSS**									
Sump No.		**Area No.**	**Location**	**Pumped?**	**Volume**	**Foundation/Grade**	**P&ID No.**	**Type of**	**Type of**	**Discharges to**
					(gal)	**Drawing No.**		**Containment**	**Liquid Alarm(s)**	
HSS		11-02	11-02	Yes	611.3	11-DB-00-00005	11-M6-HSS-00006	Secondary	None	Storm Drains, Drums

SUMP VOLUME CALCULATIONS				
PRIMARY		24915-000-V1A-DD00-00090		
H=25.5"=	2.125	FT		
W=27.625 =	2.302083	FT		
VOL=	11.26162	CU FT=	84.2	GAL
SECONDARY		24915-000-V1A-DD00-00092		
H=27"=	2.25	FT		
W=26.625'	2.21875	FT		
VOL=	11.07642	CU FT=	82.9	GAL
RO Heat Exchanger		24915-10-DB-00-00071		
H=6"=	0.5	FT		
W=1'				
VOL=	0.5	CU FT=	3.7	GAL
Truck Loading		24915-10-DB-00-00064		
H=	2	FT		
W=	2.25	FT		
VOL=	10.125	CU FT=	75.7	GAL
HSS		24915-11-DBC-00-00002		
Sump + Trench VOL is calculated as:	81.72	CU FT=	611.3	GAL

Table D-9: Miscellaneous Unit Summary

All previously permitted subpart X miscellaneous units are currently inactive, the information is retained for reference during facility closure:

Miscellaneous Unit System	Physical Characteristics	Dimensions	Maximum Waste Capacity	Exposure & Release Pathway Mitigation	Waste Feed System	Safety Cutoffs	Bypass Systems	Pressure Controls*	PFD Document Nos.	P&ID Document Nos.	Major Component Construction Materials	Secondary Containment	Spill and Overflow Protection	Ignitable, Reactive, Incompatible Waste Compliance	Air Emissions Control
Munitions Washout System (MWS) Miscellaneous Units	Input, turntable, and output conveyors with munitions storage trays, airlocks, robot, nose closure removal station, burster check station, CAMs/drain stations, weigh station, and agent transfer ancillary equipment; located in the MDB	Input and output conveyors: ~5' wide × ~200 long' Robot/NCRS/burster check station/weigh station: ~7' × ~20' footprint CAMs: ~5' × ~14' footprint ATT: ~20" diameter × ~5' height ERD: ~20" diameter × ~4' height Strainer: ~3' diameter × ~5' height		Vapor release controlled by MDB HVAC system Liquid release controlled by MDB secondary containment	In-feed conveyors from UPAs provide GB projectiles through airlocks	See Section D-8a(1)(d) and D-8a(1)(e)	none; drained projectiles to MPT, drained agent to ACS, vapor emissions to MDB HVAC System, with no bypasses		24915-07-M5-MWS-00001	24915-07-M6-MWS-00001 24915-07-M6-MWS-00002 24915-07-M6-MWS-00003 24915-07-M6-MWS-00004 24915-07-M6-MWS-00005 24915-07-M6-MWS-00006 24915-07-M6-MWS-00007 24915-07-M6-MWS-00008 24915-07-M6-MWS-00012 24915-07-M6-MWS-00013 24915-07-M6-MWS-00014 24915-07-M6-NCR-00001 24915-007-V1A-MX00-00024	Conveyors: CS CAM Frames: A829 Grade 4140 & SS CAM Agent Collection Cups: Titanium Grade 2 NCRS: CS & SS Drained Agent Pump: 316 SS Strainers: 316L SS ATTs/ERDs: 316L SS ATT Suction Pump: 316 SS	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition		Not applicable	MDB HVAC System Carbon
MY-NCR-0101			26 projectiles/hr, 350 lbs/hr					Not applicable					Not applicable		
MZ-MWS-0101D			910 lbs/hr					Pressure indicator PI3876 after vacuum pump MP-MWS-0401 and PI3869 after agent drain pump MP-MWS-0402; pressure difference indicator across strainer via PDI3873					ERD: LSH3872 ATT: LSH3856		
MZ-MWS-0101E															
Rocket Handling System (RHS) Miscellaneous Units (nonleakers)	Input and rotating conveyors, airlocks, Rocket Cutting Machines (RCMs) for separating SFT section and RMs from warheads, Rocket Shear Machines (RSMs) for punch and drain of agent and shearing of warhead segments, agent transfer ancilliary equipment, SFT and RM transfer, located in the MDB	Each set of conveyors: ~70' long × ~3' to ~5' wide Each RCM: ~7' long × ~3' wide Each RSM: ~20' long × ~3' wide Each robot: ~3' × 7' footprint ATT: ~20" diameter × ~5' height ERD: ~20" diameter × ~4' height Strainer: ~3' diameter × ~5' height		Vapor release controlled by MDB HVAC system Liquid release controlled by MDB secondary containment	In-feed conveyors from UPAs provide GB rockets through airlocks		none; drained, sheared rockets to EBHs, drained agent to ACS, vapor emissions to MDB HVAC System, with no bypasses	Pressure indicator PI3976A, PI3976B after vacuum pumps MP-RHS-0401/MP-RHS-0402 and PI3969A, PI3969B after agent drain pumps MP-RHS-0403/MP-RHS-0404; pressure difference indicators across strainers via PDI3973A, PI3973B	24915-07-M5-RHS-00001	24915-07-M6-RHS-00051 24915-07-M6-RHS-00052 24915-07-M6-RHS-00053 24915-07-M6-RHS-00054 24915-07-M6-RHS-00055 24915-07-M6-RHS-00056 24915-07-M6-RHS-00057 24915-07-M6-RHS-00058 24915-07-M6-RHS-00059 24915-07-M6-RHS-00060 24915-07-M6-RHS-00061 24915-07-M6-RHS-00062 24915-07-M6-RHS-00063 24915-07-M6-RHS-00064 24915-07-M6-RHS-00065 24915-07-M6-RHS-00066 24915-07-M6-RHS-00067 24915-07-M6-RHS-00068 24915-07-M6-RHS-00069 24915-07-M6-RHS-00070 24915-07-M6-RHS-00071 24915-07-M6-RHS-00072 24915-07-M6-RHS-00074 24915-07-M6-RHS-00075 24915-07-M6-RHS-00076 24915-07-M6-RHS-00077 24915-07-M6-RHS-00078 24915-07-M6-RHS-00079 24915-07-M6-RHS-00080 24915-07-M6-RHS-00081 24915-07-M6-RHS-00082 24915-07-M6-RHS-00083 24915-07-M6-RHS-00084	Conveyors: Drained Agent Pump: 316/316 SS Strainers: 316L SS ATTs/ERDs: 316L SS ATT Suction Pump: 316 SS	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	ATT: LSH3956A; LSH3956B ERD: LSH3972A; LSH3972B	Not applicable	MDB HVAC System Carbon
Rocket Cutting Machine (RCM) – MX-RHS-0113			1,140 lbs/hr			See Section D-8a(1)(f)									
Rocket Cutting Machine (RCM) – MX-RHS-0114			1,140 lbs/hr												
Rocket Shear Machine (RSM) – MY-RHS-0101			1,140 lbs/hr			See Section D-8a(1)(g)									
Rocket Shear Machine (RSM) – MY-RHS-0102			1,140 lbs/hr												

Miscellaneous Unit System	Physical Characteristics	Dimensions	Maximum Waste Capacity	Exposure & Release Pathway Mitigation	Waste Feed System	Safety Cutoffs	Bypass Systems	Pressure Controls*	PFD Document Nos.	P&ID Document Nos.	Major Component Construction Materials	Secondary Containment	Spill and Overflow Protection	Ignitable, Reactive, Incompatible Waste Compliance	Air Emissions Control
										24915-07-M6-RHS-00085 24915-07-M6-RHS-00086					
Metal Parts Treaters ME-MPT-0101 ME-MPT-0201	Inductively heated cylinderical structures with inlet and exit air locks and cooling chamber designed to heat contents to a minimum of 1,000 °F.	~6 ft – 4 in. inside diameter by 17 ft – 2 in. long, which includes 1 foot for each gate (inlet and outlet).	 8,000 lbs/hr 8,000 lbs/hr	Vapor release controlled by TOX units and MDB HVAC system Liquid release controlled by MDB secondary containment	Conveyors from MWS or EBH collection trays	See Section D-8a(1)(k)	None	Inlet airlocks: PSV0249A/B Outlet airlocks: PSV 0393A/B MPT: vent valves XV0482A/B	24915-07-M5-MPT-00001	24915-07-M6-MPT-00001 24915-07-M6-MPT-00002 24915-07-M6-MPT-00003 24915-07-M6-MPT-00004 24915-07-M6-MPT-00007 24915-07-M6-MPT-00012 24915-07-M6-MPT-00013 24915-07-M6-MPT-00014 24915-07-M6-MPT-00015 24915-07-M6-MPT-00017 24915-07-M6-MPT-00018 24915-07-M6-MPT-00019 24915-07-M6-MPT-00020 24915-07-M6-MPT-00021 24915-07-M6-MPT-00022	Conveyors: CS MPTs: N06601 or equivalent Inlet/outlet airlocks and conveyors: 346/316L and CS Cooling chamber: CS High temperature offgas piping: N08810 or equivalent	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Not applicable	Not applicable	OTM Off-Gas Treatment System; MDB HVAC System Carbon
Reverse Osmosis (RO) Unit ML-RO-0101 ML-RO-0201 ML-RO-0301	Multimedia filters, canister filters, and reverse osmosis (RO) units.	~20' × ~40' footprint	 64,800 gal/day 64,800 gal/day 64,800 gal/day	Liquid release controlled by SPB secondary containment	Feed from SCWO effluent tanks	See Section D-8a(1)(p)	None	High pressure pumps: PI3308A/B/C RO Units: PI3309A/B/C, PI3311A/B/C, PDI3309A/B/C Permeate: PSV3355A Multimedia Filters: PI3371-A- and PI3372-A- Cartridge Filters: PDI3307A/B/C	24915-10-M5-RO-00001	24915-10-M6-RO-00003 24915-10-M6-RO-00007 24915-10-M6-RO-00008 24915-10-M6-RO-00009 24915-10-M6-RO-00010 24915-10-M6-RO-00011 24915-10-M6-RO-00012 24915-10-M6-RO-00013 24915-10-M6-RO-00014 24915-10-M6-RO-00015 24915-10-M6-RO-00016 24915-10-M6-RO-00017 24915-10-M6-RO-00021 24915-10-M6-RO-00022 24915-10-M6-RO-00023 24915-10-M6-RO-00024	RO units (3 trains): polymer-based membranes (12 elements each train), fiberglass pressure vessels (3 per train) High Pressure Pumps: SS Multi-Media Filters (6): sand, garnet, and anthracite in CS vessels Cartridge Filters Housing (1 per train): CS	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Not applicable	Not applicable	Not applicable

*See P&IDs for additional pressure measurement and controls in place
Effectiveness of Treatment Unit: See Section D-8a(3) and Pilot Test Plan to be provided

Table D-10: Organic Air Emission Control Unit Summary

All units are currently inactive pending closure or clean closed, the information is retained for reference during facility closure:

Miscellaneous Unit System	Physical Characteristics	Dimensions	Maximum Waste Capacity	Exposure & Release Pathway Mitigation	Waste Feed System	Safety Cutoffs	Bypass Systems	Pressure Controls**	PFD Document Nos.	P&ID Document Nos.	Major Component Construction Materials	Secondary Containment	Spill and Overflow Protection	Ignitable, Reactive, Incompatible Waste Compliance	Air Emissions Control
MDB HVAC System*	Air handling units, ducting, vent lines, recirculating cooling units, heaters,and carbon filtration of exhaust.	multiple vent lines and equipment pieces located in the MDB	up to 16,000 acfm at 24 in. wc for each carbon filter train (2)	Liquid release controlled by MDB secondary containment	OTM system effluent, MWS, RHS, OTE, other areas of the MDB under cascade control (category A, B, and C)	None; system operates continuously when agent is present in the MDB - dampers isolate rooms as necessary during off-normal conditions and maintenance	None	Various differential pressure transmitters; see P&IDs	24915-08-M5-HVAC-00001	24915-08-M6-HVAC-00001 24915-08-M6-HVAC-00002 24915-08-M6-HVAC-00003 24915-08-M6-HVAC-00004 24915-08-M6-HVAC-00005 24915-08-M6-HVAC-00006 24915-08-M6-HVAC-00007 24915-08-M6-HVAC-00008 24915-08-M6-HVAC-00009 24915-08-M6-HVAC-00010 24915-08-M6-HVAC-00011 24915-08-M6-HVAC-00012 24915-08-M6-HVAC-00013 24915-08-M6-HVAC-00014 24915-08-M6-HVAC-00015 24915-08-M6-HVAC-00016	Air handling units and ductwork: galvanized sheet metal Filter housings: 304L Filter exhaust fans: coated carbon steel Prefilters: 85% efficiency meeting ARI 850 requirements HEPA filters: 99.97% efficiency for 0.3 micron particles Carbon filter adsorber: Type II tray-type cell with carbon conforming to ASME N509 requirements	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Not applicable	Not applicable	Not applicable (MDB HVAC System is an air emissions control system)

Miscellaneous Unit System	Physical Characteristics	Dimensions	Maximum Waste Capacity	Exposure & Release Pathway Mitigation	Waste Feed System	Safety Cutoffs	Bypass Systems	Pressure Controls**	PFD Document Nos.	P&ID Document Nos.	Major Component Construction Materials	Secondary Containment	Spill and Overflow Protection	Ignitable, Reactive, Incompatible Waste Compliance	Air Emissions Control
OTM System*	Equipment and components used to receive and treat effluent gases from the MPT, MPT airlocks, ENS, SDS, ACS, and ANS systems by thermal oxidizer units and associated air emissions control equipment; the OTM includes the thermal oxidizer (TOX) units, cyclones, venturi/scrubber tower, filters, air reheater, and blowers	multiple vent lines and equipment pieces located in the MDB	MPT blowers: up to 3,015 scfm at 140 in. wc	Vapor release controlled by MDB HVAC system Liquid release controlled by MDB secondary containment	MPT, MPT airlocks, ENS, SDS, ACS, and ANS systems	See Section D-8a(1)(m)	ENS to OTE System; other systems to MDB HVAC system if TOX units are down	Upstream of TOX units: PDSH1417A/B Flame arrestor: PDIT3210A/B Large flame arrestor is monitored PDIT3212A/B Small flame arrestor: PDIT3226A/B Natural gas: PSH3217A/B TOX unit outlet: PIT3237A/B Cyclone: PDI1825A/B Venturi/Scrubber: PDIT2007, PDIT1905, PDIT2733 Filters: PDIT1921A/B Blowers: PIT1935-	24915-07-M5-OTM-00001	24915-07-M6-OTM-00001 24915-07-M6-OTM-00002 24915-07-M6-OTM-00005 24915-07-M6-OTM-00006 24915-07-M6-OTM-00007 24915-07-M6-OTM-00008 24915-07-M6-OTM-00011 24915-07-M6-OTM-00013 24915-07-M6-OTM-00014 24915-07-M6-OTM-00015	see note 1	See 24915-00-TKD-GGPT-10036 Equivalent Device Petition	Scrubber: LSHH1891, LSHHH1913 Filters: LSH1922AA/BB Scrubber Recirculation Surge Tank: LSHH1954, LSHH1957	Not applicable	Not applicable (OTM System is an air emissions control system)

*These are considered air emissions control units permitted under Subpart CC requirements
**See P&IDs for additional pressure measurement and controls in place
Effectiveness of Treatment Unit: See Section D-8a(3) and Pilot Test Plan to be provided

Note 1: OTM materials of construction:

Component	Material of Construction
MPT TOX unit (MK-OTM-0106/-0206):	
Outer shell	Carbon steel
Refractory lining	Ruby SR brick with layers of insulation
Combustion air fans (MA-OTM-0102/-0202/-0302	Carbon steel housing with aluminum wheel
Burner (MA-OTM-0101/-0201)	Iron housing with refractory block
3" Flame arrestors (PY-OTM-0101/-0201)	UNS N08810 inner pipe/tubesheet and 316 SS outer pipe
8" Flame arrestors (PY-OTM-0102/-0202)	UNS N08810 inner pipe/tubesheet with refractory and 316 SS outer pipe
MPT cyclone (MK-OTM-0107/-0207)	Unified Numbering System (UNS) N08810
MPT venturi/scrubber tower (MK-OTM-0102):	
Venturi section	UNS N08810
Scrubber section	UNS N08810
Mist eliminator pad	UNS N10276
Raschig rings	UNS N10276
MPT Scrubber Recirculation Surge Tank (MV-OTM-0101)	UNS N10276
MPT venturi recirculation pump (MP-OTM-0102A/B)	UNS N30002
MPT scrubber recirculation pump (MP-OTM-0101A/B)	UNS N30002
MPT filter (MK-OTM-0104A/B)	The housing is carbon steel with 0.125-in. corrosion allowance
MPT scrubber recirculation cooler (ME-OTM-0102):	
Shell	Carbon steel with 0.125-in. corrosion allowance
Tubes	UNS N10276 with 0.0625-in. corrosion allowance
MPT scrubber recirculation trim cooler (ME-OTM-0104):	
Shell	Carbon steel with 0.125-in. corrosion allowance
Tubes	UNS N10276 with 0.0625-in. corrosion allowance
MPT air reheater (ME-OTM-0103)	
Shell	Carbon steel with 0.125-in. corrosion allowance
Heating elements	Carbon steel
MPT blower (MA-OTM-0101A/B)	
Casing	Cast iron
Impellers	Aluminum
Piping for MPT offgas and TOX offgas to venturi/scrubber feed	UNS N08810
Process water piping	316/316L SS
Piping for condensate from scrubber bottoms and scrubber recirculation	Carbon steel lined with polyvinylidiene fluoride (PVDF)
Upper portion of recirculation line to venturi	UNS N10276
Piping material of venturi/scrubber tower offgas pipe	Carbon steel

Appendix D2: Subpart CC Controls

Table D-11: Tanks and Miscellaneous Units Subject to Subpart CC Requirements

All previously permitted subpart J tanks and tank systems are currently inactive pending closure or are clean closed, information retained for reference during facility closure:

Tank or Miscellaneous Unit	Contains	Subpart CC Compliance Method / Inspection & Monitoring
Munitions Washout System (MWS) Miscellaneous Units: • MZ-MWS-0101A • MZ-MWS-0101B • MZ-MWS-0101C • MZ-MWS-0101D • MZ-MWS-0101E	Chemical agent GB waste	MDB HVAC system vent to MDB HVAC system carbon adsorption units Initial vent and carbon unit inspections performed prior to operation Unsafe for annual inspection and monitoring; inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®
Rocket Handling System (RHS) Miscellaneous Units (nonleakers): • Rocket Shear Machine (RSM) – MY-RHS-0101 • Rocket Shear Machine (RSM) – MY-RHS-0102	Chemical agent GB waste Residual chemical agent GB waste with energetics	MDB HVAC system vent to MDB HVAC system carbon adsorption units Initial vent and carbon unit inspections performed prior to operation Unsafe for annual inspection and monitoring; inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®
	Chemical agent GB waste	

Tank or Miscellaneous Unit	Contains	Subpart CC Compliance Method / Inspection & Monitoring
Rocket Handling System (RHS) Miscellaneous Units (leakers) • Rocket Shear Machine (RSM) – MY-RHS-0101 • Rocket Shear Machine (RSM) – MY-RHS-0102	Residual chemical agent GB waste with energetics and Propellant (M28)	MDB HVAC system vent to MDB HVAC system carbon adsorption units Initial vent and carbon unit inspections performed prior to operation Unsafe for annual inspection and monitoring; inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®
Agent Collection System (ACS) Tanks • Agent Holding Tank – MT-ACS-0105 • Agent Surge Tank – MT-ACS-0106	Drained chemical agent GB waste	OTMC common closed-vent system to OTM TOX (thermal oxidizers) and off-gas treatment units, with final off-gas discharge through MDB HVAC carbon Initial vent and OTM unit inspections performed prior to operation Unsafe for annual inspection and monitoring; inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®
Spent Decontamination System (SDS) Tanks • MV-SDS-0101 • MV-SDS-0201 • MV-SDS-0301	Concentrations approaching those of drained chemical agent GB waste	OTMC common closed-vent system to OTM TOX (thermal oxidizers) and off-gas treatment units, with final off-gas discharge through MDB HVAC carbon Initial vent and OTM unit inspections performed prior to operation Unsafe for annual inspection and monitoring; inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®

Tank or Miscellaneous Unit	Contains	Subpart CC Compliance Method / Inspection & Monitoring
Agent Neutralization Reactor (ANR) Tanks • MV-ANS-0101 • MV-ANS-0201	Influent: drained chemical agent GB waste Effluent: Agent Hydrolysate	OTMC common closed-vent system to OTM TOX (thermal oxidizers) and off-gas treatment units, with final off-gas discharge through MDB HVAC carbon Initial vent and OTM unit inspections performed prior to operation Unsafe for annual inspection and monitoring; inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®
Agent Hydrolysate Sampling (AHS) Tanks • MT-ANS-0103 • MT-ANS-0203 • MT-ANS-0303	GB Agent Hydrolysate	OTMC common closed-vent system to OTM TOX (thermal oxidizers) and off-gas treatment units, with final off-gas discharge through MDB HVAC carbon Initial vent and OTM unit inspections performed prior to operation Unsafe for annual inspection and monitoring; inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®

Tank or Miscellaneous Unit	Contains	Subpart CC Compliance Method / Inspection & Monitoring
Hydrolysate Collection Tank • MT-EBH-1901	Nonleakers: Partially treated chemical agent GB waste Partially treated energetics Leakers: Partially treated chemical agent GB waste Partially treated energetics Partially treated propellant	MDB HVAC system vent to MDB HVAC system carbon adsorption units (vent to room serviced by HVAC vent) Initial vent and carbon unit inspections performed prior to operation Unsafe for annual inspection and monitoring; inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®
Agent Hydrolysate HSA Tanks • MT-HSS-0104 (VX only) • MT-HSS-0105 (GB only) • MT-HSS-0205 (GB only)	GB Agent Hydrolysate	Closed-vent system to MDB HVAC carbon adsorption units Initial vent and carbon unit inspections performed prior to operation Annual monitoring of tank openings, control vent lines outside MDB; unsafe for annual inspection and monitoring inside MDB - inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®

Tank or Miscellaneous Unit	Contains	Subpart CC Compliance Method / Inspection & Monitoring
Energetics Hydrolysate HSA Tanks • MT-HSS-0604 • MT-HSS-0704	GB Energetics Hydrolysate	Closed-vent system to MDB HVAC carbon adsorption units Initial vent and carbon unit inspections performed prior to operation Annual monitoring of tank openings, control vent lines outside MDB; unsafe for annual inspection and monitoring inside MDB - inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®
Metal Parts Treaters • ME-MPT-0101 • ME-MPT-0201	Residual chemical agent GB waste	OTMC common closed-vent system to OTM TOX (thermal oxidizers) and off-gas treatment units, with final off-gas discharge through MDB HVAC carbon Initial vent and OTM unit inspections performed prior to operation Unsafe for annual inspection and monitoring; inspections for leaks performed by CCTV or when entry allows, and alternative monitoring by MINICAMS®; MDB HVAC carbon breakthrough monitoring by MINICAMS®

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Part E: Groundwater Monitoring [401 KAR 34:060 Section 1 & 40 CFR 264.90(b)(2)]

Groundwater monitoring requirements are not applicable. The BGCAPP facility is not a land-based disposal unit. The BGCAPP facility was designed to contain and control all releases, thereby preventing impacts to the groundwater. Although the BGCAPP facility does receive wastes that contain free liquids (i.e., projectiles containing chemical agent), the design and hazard prevention procedures of the facility provide protection for the environment and general public, eliminating the requirement for groundwater monitoring in the vicinity of the facility.

In addition, the BGCAPP facility does not contain any identified solid waste management units (SWMUs) that require groundwater monitoring. BGCAPP is performing an investigation of the groundwater background levels for the entire BGCAPP site to include the SDC 1200 and 2000 facilities. The first quarter groundwater sampling was completed in July 2015 and quarterly sampling has been conducted prior to beginning agent operations. The final background report was provided to KDEP on December 6, 2016.

Part F: Procedures to Prevent Hazards

See Volume II.

Part G: Contingency Plan and Emergency Procedures [401 KAR 38:090, Section 2(7), 34:040, Sections 1-7, and 34:190 Section 7 & 40 CFR 264.50-264.56 and 264.196]

See Volume II.

Appendix G1: SPCC

See Volume II

Part H: Personnel Training
[401 KAR 34:020 Section 7 and 40 CFR 264.16]

See Volume II.

Part I: Closure Plan, Post Closure Plans and Financial Requirements [401 KAR 34:070 Sections 2–6; 34:080 Section 2(3); 34:180 Section 9; 34:190 Section 8; 34:250 Section 2; & 40 CFR 264.111–115, 264.178, and 264.601]

See Volume II.

Part J: Other Federal Laws

The BGCAPP facility adheres to the existing permits of BGAD. The BGAD Chemical Storage Permit previously addressed other federal laws pertinent to the BGCAPP facility.

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

J-1: Wild and Scenic River Act

BGCAPP facility operations will not affect wild or scenic rivers.

J-2: National Historic Preservation Act

Operations of the BGCAPP facility will not affect cultural resources on BGAD. No additional facilities will be constructed in support of BGCAPP facility operations outside of the existing BGCAPP footprint. During any additional BGCAPP facility earthwork activities, if the discovery of a culturally significant item is made, activities will be halted and notification of appropriate personnel to identify and remove the item(s) will be made.

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 BGCAPP facility is not located in these areas.

BGAD has not identified endangered animal species on BGAD or the area around the BGCAPP facility.

J-4: Coastal Zone Management Act

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

J-5: Fish and Wildlife Coordination Act

The operation of the BGCAPP 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 38:090 Section 2(23) and 38:030 Section 1 & 40 CFR 270.30]

The operations of the BGCAPP 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 the BGCAPP project: Design, Construction, Systemization, Operations, and Closure. Simply stated, the BGCAPP 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 BGCAPP Facility. The Facility Waste Minimization Plan is document 24915-00-G01-GGEN-00028 and is located in Appendix K1.

Appendix K1: Waste Minimization Plan

See Volume II.

Part L: Signatures [401 KAR 38:070 Section 7 & 40 CFR 270.11]

"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
Commanding
BGCAPP Facility Owner