June 20, 2017

Subject: Class 2 Hazardous Waste Storage & Treatment Permit Modification Request, GB Sample Extraction Operation
Blue Grass Army Depot (BGAD)
EPA ID #KY8-213-820-105, AI #2805

Commonwealth of Kentucky
Department for Environmental Protection (KDEP)
Division of Waste Management
Hazardous Waste Branch
ATTN: Ms. April Webb, PE, Manager
300 Sower Blvd, 2nd Floor
Frankfort, KY 40601

Dear Ms. Webb:

Enclosed, for your review and approval, are a Resource Conservation and Recovery Act (RCRA) Class 2 Hazardous Waste Storage & Treatment Permit Modification Request to perform Sarin (GB) Sample Extraction Operation and an updated part A.

Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) mission is to safely destroy the chemical weapons stored at the Blue Grass Chemical Activity (BGCA) located on BGAD. Execution of this mission is the responsibility of the Program Executive Office (PEO) Assembled Chemical Weapons Alternatives (ACWA). Chemical munitions currently stored at BGAD will be treated at the BGCAPP.

The BGCAPP Laboratory currently has access to GB hydrolysate that was manufactured using high-purity distilled GB agent; this hydrolysate matrix may not support development and validation of appropriately robust GB analytical methods. Munitions-grade agent is agent that has been pulled from aging agent-containing munitions and not purified. Absence of historical stabilizer(s), degradation byproducts, and original production impurities may lead to development or optimization of analytical methods that are not sufficiently robust to analyze plant munitions-grade hydrolysate. To reduce analytical startup risk and better prepare the BGCAPP Laboratory for GB
destruction operations, PEO ACWA has made the decision to obtain samples of munitions-grade GB to allow sufficient quantity of representative caustic GB hydrolysate to meet BGCAPP Laboratory analytical optimization and development needs. Sampling of agent from a selected number of GB filled munitions is required to support the development of analytical methods. The GB agent within BGAD stockpile contained two different types of stabilizer, tributylamine (TBA) and TBA/diisopropylcarbodiimide (DICDI).

The proposed plan is to obtain samples from 8-inch GB filled projectiles containing TBA and DICDI stabilizers. Approximately 1 liter of GB sampled with TBA stabilizer and 1 liter of GB sampled with DICDI stabilizer will be collected.

The operation will take place in the Chemical Limited Area (CLA) in the same location planned for Mustard (H) Agent Treaty Sampling. The selected GB filled chemical projectile to be sampled will be moved from a chemical hazardous waste storage unit (HWSU) to the sampling facility. The agent extraction/sampling will be conducted in a glovebox inside an Environmental Enclosure (EE). Once the sample operations are completed, the chemical munitions will be over packed and returned to a designated chemical HWSU. The samples will be prepared for shipment, and placed into a chemical HWSU for temporary storage, awaiting shipment by the U.S. Army 20th Support Command to Edgewood Chemical Biological Center Chemical Transfer Facility. The operation is proposed to take place in May 2018.

This RCRA permit application describes the transportation of the chemical munitions to the sampling facility, the extraction/sampling operations, preparation of the samples for shipment, and transport of the overpacked chemical munitions to the designated chemical HWSU.

If you have any questions or require additional information, please contact Mr. Todd Williams, ACWA-BGCAPP Environmental Engineer, at (859) 625-6264, or Mr. Jim Hawkins, BGAD Environmental Chief, at (859) 779-6268.
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or 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."

Sincerely,

Jeff Brubaker
Site Project Manager
ACWA-BGCAPP
Operator

cc:
Dale Burton, KDEP
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Norbert A. Fochs
Colonel, U.S. Army
Commanding
Blue Grass Army Depot
Resource Conservation and Recovery Act (RCRA)

Class 2 Hazardous Waste Storage & Treatment Permit Modification Request, Addition of GB Sample Extraction Operation

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

Submitted to:
Kentucky Energy and Environment Cabinet
Department for Environmental Protection
Division of Waste Management
300 Sower Boulevard
Frankfort, Kentucky 40601

Submitted by:
Blue Grass Army Depot
431 Battlefield Memorial Highway,
Richmond, Kentucky 40475-5901

and

Assembled Chemical Weapons Alternatives
Blue Grass Chemical Agent-Destruction Pilot Plant
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Submitted 20 June 2017
Revision 0
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Executive Summary

The filing of this request is a Modification to the Blue Grass Army Depot’s (BGAD’s) Resource Conservation and Recovery Act (RCRA) Permit. The document is a modification to BGAD’s RCRA permit and is not intended to be a stand-alone document. When applicable, this document references operations (steps, procedures, etc.) in BGAD permit applications rather than reiterating those operations. This minimizes discussion inaccuracy and error between other Parts/modules of BGAD permit. Therefore this modification request incorporates by reference specific parts of BGAD’s October 2015 renewal applications/modifications Modules I (Entire Facility Permit Section (F)), Module II (Conventional Storage Permit Section (N)), and Module III (Chemical Storage Permit Section (C)).

The mission of the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) is to safely destroy the chemical weapons stored at the Blue Grass Chemical Activity (BGCA) located on the Blue Grass Army Depot (BGAD). Execution of this mission is the responsibility of the Program Executive Office (PEO) Assembled Chemical Weapons Alternatives (ACWA). Chemical munitions currently stored at BGAD will be treated at the Blue Grass Chemical Agent–Destruction Pilot Plant (BGCAPP).

The BGCAPP Laboratory currently has access to GB hydrolysate that was manufactured using high-purity distilled GB agent obtained from Edgewood Biological and Chemical Center (ECBC). This hydrolysate matrix may not support development and validation of appropriately robust GB analytical methods due to the unknown composition/state of degradation of the GB agent fill within the munitions stored at BGAD. Munitions-grade agent is agent fill that has been pulled from aging munitions and not purified. Absence of historical stabilizer(s), degradation byproducts, and original production impurities may lead to development or optimization of analytical methods that are not sufficiently robust to analyze plant munitions-grade hydrolysate. To reduce analytical startup risk and better prepare the BGCAPP Laboratory for GB destruction operations, PEO ACWA has made the decision to obtain samples of munitions-grade GB to allow sufficient quantity of a representative caustic GB hydrolysate sample to meet BGCAPP Laboratory analytical optimization and development needs. Sampling of agent from a selected number of GB filled munitions is required to support the development of analytical methods that will best support BGCAPP GB destruction operations. Based on historical munition lot data, the GB agent within the BGAD stockpile contained two different types of stabilizers: tributylamine (TBA) and TBA/diisopropylcarbodiimide (DICDI).

The proposed plan is to obtain samples from 8-inch GB filled projectiles containing TBA and DICDI stabilizers. The 8-inch GB projectiles store at BGAD contain approximately 6 liters of GB agent and do not contain energetics/burster. The M55 Rockets will not be sampled due to concerns with the thin-wall aluminum body and the potential difficulties to re-plug the thin wall of the rockets. Approximately 1 liter of GB containing TBA stabilizer and 1 liter of GB containing DICDI stabilizer will be collected to create the representative hydrolysate samples.
Kentucky Revised Statute 224.50-130(5) defines “treatment” to include the manual or mechanical handling of the chemical agent compounds and of any munitions containing these compounds during the processing of munitions to remove the compounds, to separate munitions components, and to otherwise prepare the components and compounds for destruction, neutralization, dismantling, or decommissioning; therefore, a permit modification is required to extract agent from the chemical munitions.

BGAD stockpiled chemical munitions are stored in permitted chemical Hazardous Waste Storage Units (HWSUs) inside the Chemical Limited Area (CLA). The chemical HWSUs are earthen-covered bisection cylindrical structures and constructed with concrete to ensure the safe storage and containment of the munitions.

The operation will take place in the CLA in the same location planned for Mustard (H) Agent treaty sampling. The selected GB filled chemical projectile(s) to be sampled will be moved from a chemical HWSU to the sampling facility. The agent extraction/sampling will be conducted in a glovebox inside an Environmental Enclosure (EE). Once the sample operations are completed, the chemical munitions will be over packed and returned to a designated chemical HWSU. The samples will be prepared for shipment, and placed into a designated chemical HWSU for temporary storage, awaiting shipment by the US Army 20th Support Command to Edgewood Chemical Biological Center (ECBC) Chemical Transfer Facility (CTF).

This RCRA permit modification request describes the transportation of the chemical munitions to the sampling facility, the extraction/sampling operations, preparation of the samples for shipment, and transport of the overpacked chemical munitions to the designated chemical HWSU.
**Acronyms/Abbreviations**

1. **ACWA** – Assembled Chemical Weapons Alternatives
2. **BGAD** – Blue Grass Army Depot
3. **BGCA** – Blue Grass Chemical Activity
4. **BGCAPP** – Blue Grass Chemical Agent-Destruction Pilot Plant
5. **BIF** – Boilers and Industrial Furnaces
6. **CAFS** – Chemical Agent Filtration System
7. **CAIRA** – Chemical Accident/Incident Response and Assistance
8. **CAIRAP** – Chemical Accident/Incident Response and Assistance Plan
9. **CCTV** – closed circuit television
10. **CD** – is a designation/name for a Hazardous Waste Storage Unit/Igloo
11. **cfm** – cubic feet per minute
12. **CLA** – Chemical Limited Area
13. **CP** – command post
14. **CPC** – chemical protective clothing
15. **CWC** – Chemical Weapons Convention
16. **CTF** – Chemical Transfer Facility
17. **DAAMS** – Depot Area Air Monitoring System
18. **DICDI** – diisopropyl carbodiimide stabilizer
19. **DOD** – Department of Defense
20. **DOT** – Department of Transportation
21. **ECBC** – Edgewood Chemical Biological Center
22. **EDT** – Explosive Destruction Technology
23. **EE** – Environmental Enclosure
24. **EOC** – Emergency Operations Center
25. **EPA** – Environmental Protection Agency
Acronyms/Abbreviations (continued)

GB – nerve agent sarin, isopropyl methylphosphonofluoridate
GH – is a designation/name for a Hazardous Waste Storage Unit/Igloo
H – blister agent; Levinstein: bis(2-chloroethyl) sulfide or 2,2’ – dichlorodiethyl sulfide
HAZWOPER – Hazardous Waste Operations and Emergency Response
HDPE – high density polyethylene
HEPA – high efficiency particulate air
HW – hazardous waste
HWMTP - Hazardous Waste Management Training Program
HWSU – Hazardous Waste Storage Unit
IAW – in accordance with
IC – Incident Commander
IRFC – Initial Response Force Commander
ISCP – Installation Spill Contingency Plan
KDEP – Kentucky Department for Environmental Protection
LO – is a designation/name for a Hazardous Waste Storage Unit/Igloo
MINICAMS® – Miniature Continuous Air Monitoring System
MSDS – Material Safety Data Sheet
N001 – Kentucky Hazardous Waste code for GB
N701 – Kentucky Hazardous Waste code for GB Lab waste
NRT – near real-time
OC – Operations Center
OJT – on-the-job training
OSC – On-Scene Coordinator
OSHA – Occupational Safety and Health Administration
PDS – personnel decontamination station
PEO, ACWA – Program Executive Office, Assembled Chemical Weapons Alternatives
Acronyms/Abbreviations (continued)

POP – performance oriented packaging
PPE – personal protective equipment
RCRA – Resource Conservation and Recovery Act
RDT&E – Research, Development, Test and Evaluation
SAA – Satellite Accumulation Area
SDS – spent decontamination solution
SDS – Safety Data Sheet
SOP – standing operating procedure
SPCCP – Spill Prevention Control and Countermeasures Plan
SRC – single round container
STEL – short-term exposure limit
TBA – tributylamine stabilizer
VSL – vapor screening level
WPL – worker population limit
Part B: Facility Description [401 KAR 38:090, Section 2 & 40 CFR §270.14]

The General Facility Description (B-1 through B-7) is identified in the following Modules:


b. General description of the Chemical Limited Area (CLA) is located in Module III, Part B of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application for Chemical Munition Related Items, EPA ID # KY8-231-820-105 dated October 2015. The RCRA Hazardous Waste Storage Permit Renewal Application for Chemical Munition Related Items is also known as the Chemical Storage Permit Application.

The BGAD RCRA permit application is prepared in a modular format addressing various depot and tenant operations. BGAD renewal permit for Modules I (Entire Facility Permit Section (F)), Module II (Conventional Storage Permit Section (N)), and Module III (Chemical Storage Permit Section (C)) was issued on March 17, 2016. A separate permit modification request to add Explosive Destruction Technology (EDT) Facility (Permit Section (E)), and Mustard agent (H) Sampling Operations (Permit Section (M)) to BGAD RCRA permit was issued 23 September 2016.

This permit modification request for Agent Sampling Operations to BGAD RCRA permit references specific parts of the renewal application. To facilitate the review of this permit modification request, BGAD renewal application (Modules I, II, and III) will be available for reference during the public comment period.

c. Agent Extraction/Sampling Operations

The Chemical agent munitions currently stored at BGAD will be treated/demilitarized at Blue Grass Chemical Agent–Destruction Pilot Plant (BGCAPP). Sampling of agent from a select number of these munitions is required to support the development of laboratory analytical methods for the BGCAPP project. To properly prepare the Laboratory for plant operations, Sarin (GB) agent hydrolysate produced from munitions-grade agent containing both tributylamine (TBA) stabilizer and diisopropyl carbodiimide (DICDI) stabilizer is desirable.

The sampling facility will be located in the CLA of BGAD. Within a permitted chemical Hazardous Waste storage Unit (HWSU), the selected munitions will be placed into a Single Round Container (SRC) also known as an overpack. The overpack/SRC will be moved to a flatbed truck and secured, transported to the sampling facility, placed in an Environmental Enclosure (EE), and monitored. Inside the EE, the munition will be
removed from the SRC and placed into a glovebox. The EE and glovebox will be under engineering controls. Within the glove box, the 8 inch GB round will be drilled, tapped, sampled, and sealed. GB will be transferred from the munition to a calibrated container and then into a Department of Transportation (DOT) bottle/container (see Figure D-6). Once the sampling operation is completed, the munition and DOT bottle will be cleared and removed from the glovebox. The munition will be placed back into an overpack, and transported to a designated chemical HWSU for storage until demilitarization operations begin at BGCAPP. The samples will be prepared for shipment and transported to a designated chemical HWSU for temporary storage awaiting shipment to ECBC’s Chemical Transfer Facility (CTF). The sample will be managed under 40 CFR 261.4 [Exclusions], (d) [Samples] and (e) [Treatability Study Samples].

B-8. Public Participation

A public meeting will be held following submittal of this permit modification request to introduce and explain this modification request (i.e., adding the Agent Sampling Facility and transportation of chemical agent munitions).

In a separate submittal, the Kentucky Department for Environmental Protection (KDEP) will be provided the following:

a. A summary of the pre-permit modification request public meeting.
b. A list of attendees.
c. Copies of written comments or materials submitted at the meeting.

B-9. Fees

An existing grant from Assembled Chemical Weapons Alternatives (ACWA) to KDEP Division of Waste Management includes monies to pay the fee for filing and review of this Class 2 BGAD RCRA Permit Modification. No additional monies are required.
Part C: Waste Analysis Plan [401 KAR 38:090, Section 2(3), 34:020, Section 4 & 40 CFR §264.13(b)]

Module III, Part C of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application for Chemical Munition Related Items, referenced in Part B of this document is incorporated by reference. Module III provides details on the chemical munitions to be sampled during this operation.

The wastes to be managed during this operation are 8-inch GB filled projectiles (see Figure D-5) that are currently stored in BGAD chemical HWSUs and secondary waste generated during the operation and site closure.

The 8-inch fill GB filled projectiles at BGAD do not contain energetic materials.

Process knowledge and RCRA characterization sampling and analysis will be conducted to ensure proper waste identification, management, and listing of hazardous waste.

Hazardous wastes will be managed in accordance with (IAW) RCRA waste management requirements and BGAD’s RCRA Hazardous Waste Storage and Treatment Permit. Hazardous wastes will be placed into containers that meet the performance-oriented packaging (POP) requirements for the materials to be contained in accordance with DOT requirements.

Wastes that may be generated during the drilling & sampling process include, but are not limited to:

- Drill bits and metal shavings
- Sampling equipment
- Glassware
- Tubing
- Spent carbon and high efficiency particulate air (HEPA) filters from the glovebox
- Spent carbon and high efficiency particulate air (HEPA) filters from the EE
- Diesel fuel, used motor oil and filters from diesel generators and compressors
- Personnel decontamination station (PDS) Wastes and Spent Decontamination Solutions (SDS)
- Used personal protective equipment (PPE)
- Monitoring wastes, which may include gloves, general lab waste (KimWipes, vials, towels, etc.), and spent solvents such as isopropyl alcohol and acetone
- Miscellaneous solids such as wipes, cloths, and absorbed wastes from spill clean-up activities
• Miscellaneous liquid wastes such as chemical or supply spill material or other fluids
• Lab Waste associated with GB sampling operations (N701)

Spent carbon and HEPA filter exposed to agent will be managed as hazardous waste (N001).
Part D: Process Information [401 KAR 34:180, 38:150, and 34:190, Sections 1 & 3 & 40 CFR §264.170-179, 270.15, 264.190, and 264.192(a)]

Chemical Agent (GB)-filled 8-inch projectiles (figure D-5) that are currently stored at BGAD will be treated/demilitarized at Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP). Sampling and analysis of agent from a select number of these munitions is required to support the development of analytical methods for the BGCAPP project.

The selected chemical projectiles will be placed into an overpack (single round container (SRC)) (see figure D-6) prior to removal from a chemical Hazardous Waste Storage Unit (HWSU). The overpack rounds will be moved from the chemical HWSU, placed onto a flatbed truck, transported to the sampling facility, and unloaded. The overpack munitions will then be moved into the Environmental Enclosure (EE) structure and monitored. The projectiles will be removed from the overpack and placed into a glovebox inside the EE structure.

Within the glove box, the 8 inch GB round will be drilled and tapped, and sampled. GB will be transferred from the munition to a calibrated container and then into a Department of Transportation (DOT) bottle. Once the sampling operation is completed, the munition and DOT bottle will be cleared and removed from the glovebox. The munition will be placed back into an overpack, and transported to a chemical HWSU until demilitarization operations begin at BGCAPP. The samples will be prepared for shipment and transported to a chemical HWSU “GH” for temporary storage awaiting shipment to the Chemical Transfer Facility (CTF).

The sampling operation is projected to take approximately 6 work days. If additional projectiles are required to be sampled, or if unexpected down time occurs, the projected time line will be extended.

A flatbed truck will be used to transport the overpack projectiles from and to the chemical HWSU “GH”. Transport is restricted to daylight hours. Transport of chemical munitions is regulated as treatment under Kentucky Revised Statutes [KRS 224.50-130(5)]. Part A of BGAD’s Kentucky Hazardous Waste Permit Application has been updated to reflect the Class 2 Modification request for sampling and transportation of the chemical agent projectiles.

The sampling operations/permit action are to include movement of the chemical (GB) filled projectiles. Movement of the chemical filled items for sampling will only occur during daylight hours. The number of munitions in the EE will be limited to the number of rounds to be sampled in one day. Once sampled, the items will be sealed, decontaminated, removed from the glovebox, monitored for GB to the WPL of 0.00003 mg/m³, overpacked, and transported to chemical HWSU “GH”.

D-1
This RCRA permit modification request includes overpacking the chemical projectiles at the chemical HWSU, transportation of overpacked chemical filled projectiles from the HWSU to the EE facility, sampling of the projectiles, placing the samples into DOT bottles, overpacking the projectiles, transporting of the overpack projectiles to a designated chemical HWSU, temporary storage of the samples, and shipment of the samples.

This operation will be performed under the Federal and the Commonwealth of Kentucky hazardous waste regulations. Part A of this RCRA Permit Modification Request provides the hazardous waste numbers associated with the projectiles to be sampled.

Sampling of the chemical filled projectiles will be the only operation conducted inside the EE, therefore, other portions of the KDEP checklist (e.g., for storage, landfills, waste piles, incinerators) are not applicable. Following this Part D are copies of the referenced Figures.

ACWA-BGCPP Site Project Manager or designees will be responsible for the management and oversight of the agent sampling operations to include but not be limited to loading/movement/unloading of the items for the sampling operations. The Operational Supervisor or designee will be in charge of the day to day operations of the sampling process and the proper handling of all material and wastes generated by the sampling operations.

D-1. Containers

D-1a. Container Management

BGAD stockpiled chemical munitions are stored on pallets in permitted chemical HWSUs inside the CLA. The chemical HWSU are earthen-covered bisection cylindrical structures and constructed with concrete to ensure the safe storage and containment of munitions. The 8-inch GB filled projectiles at BGAD do not contain energetic materials, and are stored 6 to a pallet, secured with steel banding.

The sampling facility will be located inside the CLA. GB-filled 8-inch projectiles will be sampled in a glovebox inside the EE. The number of agent filled projectiles in the EE at any given time will only be the amount that will be sampled that day. There will be no RCRA permitted storage areas at the sampling site. Secondary waste generated during sampling and analysis operations will be collected in a designated hazardous waste storage site (Satellite Accumulation Areas [SAAs] or a less than 90 day area) located at the sampling facility/site.

D-1a(1). GB-filled 8-inch

GB-filled 8-inch projectiles (M426):
The 8-inch GB filled projectile, designated as M426, has a mass of more than 198 pounds (90 kg). The 8 inch projectiles at BGAD are stored without a burster or supplementary charge assembly (figure D-5). The projectile body is forged steel; length with lifting plug is approximately 35 inches, and contains approximately 14.5 pounds of GB agent ($\approx$6 liters).

Once the projectile is sampled and sealed, it will be decontaminated, monitored to less than the WPL, overpacked into a SRC, and transported to a designated chemical HWSU “GH” where overpacked GB munitions are managed. Transport of the projectile and secondary waste shall be restricted to daylight hours. Normal sampling operations will be within daylight hours. Once a sampling operation begins, the operation will not stop until the item is overpacked in an SRC. If conditions arise to restrict the chemical munition or sample from being transported to and secured within a designated GB chemical HWSU the chemical item will be retained in the EE under engineering controls.

D-1a(2). Wastes Generated During Sampling Operations

Wastes that will be generated during the sampling operation include, but are not limited to:

- Drill bits and metal shavings
- Sampling equipment (labware, glassware, composite liquid waste samplers (COLIWASA), plastic, rags, vials, syringes, etc...)
- Glassware
- Spent carbon and high efficiency particulate air (HEPA) filters from the glovebox or EE
- Diesel fuel, used/waste motor oil and filters from diesel generators and compressors
- Personnel Decontamination Station (PDS) Wastes and Decontamination Solutions
- Used personal protective equipment (PPE)
- Monitoring wastes, which may include gloves, general lab waste (Kimwipes, vials, towels, etc.), and spent solvents such as isopropyl alcohol and acetone
- Miscellaneous solids such as wipes, cloths, and absorbed wastes from spill clean-up activities
- Miscellaneous liquid wastes such as chemical or supply spill material or other fluids.

Wastes generated will be stored in containers in a hazardous waste storage area (SAA and/or a less than 90 day storage) located at the sampling facility. This waste generated is comparable to the waste produced in the management of the chemical weapons and the waste generated from the sampling operations will be managed IAW
Module III Part D-a(9) of the Chemical Storage Permit Application. Containers containing hazardous waste (HW) will be marked as “Hazardous Waste” with the Kentucky HW code of N001 for GB or N701 for lab wastes associated with the sampling operation. Hazardous waste containers will be kept closed except when waste is being added, removed, decontaminated, or monitored/sampled. Once the containers are full or no longer in use, they will be dated and moved to a permitted HWSU “LO”1, or a less than 90 day storage site. HW that is generated in this operation will be maintained in containers that conform to the minimum size necessary to house the waste generated and that meet or exceed performance-oriented packaging (POP). Once the sampling operation is complete the site will be closed IAW Part I of this permit modification request and all hazardous wastes transported to a permitted HWSU “LO”. Hazardous waste will be transported for disposal IAW Module III, Part D-1 of the Chemical Storage Permit Application, referenced in the Part B.

Upon completion of operations, all hazardous waste and hazardous waste residues will be removed. The glovebox, EE, and PDS will be decontaminated using an appropriate decontamination solution. Once monitoring indicates that these structures are less than the WPL, the carbon will be removed from the carbon filter units and the filter housing will be decontaminated and monitored to less than the WPL. All ECBC equipment and structures will then be removed from BGAD and returned to ECBC in Maryland. This equipment is reusable and not considered a waste. Closure wastes will be collected in containers at a hazardous waste storage area (SAA and/or a less than 90 day storage) located at the site. GB agent contaminated wastes will carry the Commonwealth of Kentucky hazardous waste number N001. Lab Wastes associated with treated GB wastes carry the Commonwealth of Kentucky hazardous waste number N701. Agent headspece monitoring or generator knowledge will be used for characterization. Containers will be transported to HWSU “LO” for disposal IAW BGAD Module III, Part D-1.

D-1b. Containers With Free Liquids or F020, F021, F023, F026, and F027 Wastes

Not applicable. There will be no RCRA permitted storage areas in the EE. The number of projectiles in the EE at any given time will only be the amount that will be sampled that day.

D-1c. Containers Without Free Liquids or F020, F021, F023, F026, and F027 Wastes

Not applicable. There will be no RCRA permitted storage areas in the EE. The number of projectiles in the EE at any given time will only be the amount that will be sampled that day.

D-1d. Requirements for Ignitable or Reactive Wastes and Incompatible Wastes

1 “LO” – is a designation/name for a permitted Hazardous Waste Storage Unit.
There will be no RCRA permitted storage areas at the sampling facility. These wastes are not ignitable or incompatible. The number of projectiles at the sampling facility or in the EE at any given time will only be the amount that will be sampled that day.

D-2. Process Information: Tank Systems

Not applicable. The EE will not include any tank systems.

D-3. Surface Impoundments

Not applicable. The sampling operation will not include any surface impoundments.

D-4. Waste Piles

Not applicable. The sampling operation will not include any waste piles.

D-5. Land Treatment

Not applicable. The sampling operation will not include land treatment.

D-6. Landfill Design

Not applicable. The sampling operation will not include landfills.

D-7. Incinerators

Not applicable. The sampling operation will not include an incinerator.

D-8. Miscellaneous Units

GB-filled projectiles that are currently stored at BGAD will be treated at BGCAPP. For BGCAPP Lab to perform complete method development work, validate the Destruction Efficiency clearing levels, and conduct Precision and Accuracy efforts on analytical methods, weapons grade GB agent is desired. In 4QFY16, it was determined that no munitions-grade GB exists in ECBC inventory to support Battelle’s requirements. BGAD chemical stockpile contains the last known weapons grade GB in the US. To support BGCAPP operations, it has been decided to pull agent from BGAD stockpile to support remaining lab requirements prior to BGCAPP operations.

The proposed sampling does not meet the typical definition or model for a “Miscellaneous unit” under RCRA. However, Kentucky Revised Statute 224.50-130(5) defines “treatment” to include the manual or mechanical handling of the chemical agent compounds and of any munition containing the compounds during the processing of
munitions to remove the compounds, to separate munitions components, and to otherwise prepare the components and compounds for destruction, neutralization, dismantling, or decommissioning. Therefore, a permit modification is required for obtaining GB agent from chemical munitions to include transportation of the munitions.

Details on the agent sampling operation is listed in Part D and, in particular, Part D-12, Kentucky Miscellaneous/Other Units: Agent Sampling Operations

D-9. Boilers and Industrial Furnaces (BIFs)

Not applicable. The sampling operation will not include any BIFs.

D-10. Containment Buildings

Not applicable. The sampling operation will not include any containment buildings.

D-11. Drip Pads

Not applicable. The sampling operation will not include any drip pads.

D-12. Kentucky Miscellaneous/Other Units: Agent Sampling Operations

D-12a. Description of Sampling Facility

The sampling facility location will be next to Building 16550, which is west of the BGCAPP site and across from HWSU/igloo "CD2" located within BGAD's CLA (see Figure D-1). The typical sampling facility layout consists of a glovebox inside an EE, a PDS, a sampling facility command post (CP), a storage area, utilities, a monitoring house, and a laboratory (see Figure D-2).

D-12a(1) Description of the Environmental Enclosure (EE)

The EE has four sides, a roof, and is constructed of steel. The EE will be assembled on a compacted gravel area. The floor will be constructed with three separate layers and bermed to contain liquid spills and prevent run on/run off. The separate layers are a Geo-tec fabric (or similar material), followed by a 6 mil layer of plastic, bermed around the inside perimeter of the EE, then a 2 inch high density polyethylene (HDPE) interlocking flooring. There are two Chemical Agent Filtration Systems (CAFS) (one 6,000 cubic feet per minute [cfm] and one 2,500 cfm) associated with the sampling operation. During operations, the 6,000 cfm filter maintains negative pressure of both the EE and PDS structures. The 2,500 cfm maintains negative pressure on the glovebox within the EE. The CAFS will provide sufficient ventilation under engineering

---

2 "CD" – is a designation/name for a permitted Hazardous Waste Storage Unit.
controls to maintain the glovebox, EE, and PDS at a negative pressure and prevent the uncontrolled release of chemical agent vapors to the environment. Figure D-3 is a typical photo of an EE and PDS. Figures D-8 and D-9 are typical drawings of 6,000 and 2,500 cfm CAFS.

D-12a(2) Description of the Personnel Decontamination Station/Structure (PDS)

The PDS is used for workers to enter and egress the EE. It is an extension of the EE and consists of a PPE drop location followed by hot zone to cold zone shuffle pans of the appropriate decontamination solution(s) and water. The PDS will be assembled on a gravel area. The floor will be constructed with three separate layers to contain liquid spills and prevent run on/run off. The separate layers are a HDPE, 6 mil poly plastic sheeting, and a geo text fabric sheet (or equivalent material). Adhesive is used to attach the PDS structure to the EE structure.

During operations, the 6,000 cfm filter maintains negative pressure of both the EE and PDS structures.

When entering the enclosure, personnel will be dressed in the appropriate PPE dictated by the monitoring levels reported by the MINICAMs Personnel. Personnel will request access to the PDS/EE through the Command Post (CP). Once access is granted, personnel will enter through the entry door located in the PDS.

When exiting the enclosure personnel will notify the CP that they will be exiting the enclosure. Personnel exiting the enclosure will not be required to gain permission from the PDS team lead to exit if MINICAM results are below the action level. If MINICAM results are above the action level, operations personnel will request permission to exit the PDS. Once permission is granted the PDS team will process personnel through the PDS.

Personnel will be monitored IAW a Site Specific monitoring plan [the Site Specific Air Monitoring Plan for the Sampling Operation in Support of the Blue Grass Chemical Agent – Destruction Pilot Plant (BGCAPP) Located on the Blue Grass Army Depot (BGAD) (Attachment D-2)]. The most current copy of the monitoring plan will be available at the sampling location.

D-12a(3) Description of the Glovebox

The glovebox is a sealed container that is designed to allow the items (projectiles and DOT bottles) to be manipulated in a separate controlled atmosphere. Built into the sides of the glovebox are gloves arranged in such a way that the user can place their hands into the gloves and perform tasks inside the box without breaking containment. Part or all of the box is transparent to allow the user to see and perform the manipulated (sampling) within the glovebox. Figure D-4 shows a typical glovebox.
The glovebox is maintained under negative pressure and includes both carbon and HEPA filtration to capture agent vapors. The glovebox is maintained under negative pressure utilizing the 2,500 CFM filtration system. The duct work from the glovebox passes through a port within the EE structure. The glovebox will be certified by ECBC Safety and Health officials to verify proper glovebox ventilation and filter function before sampling operations begin. Proper ventilation will be verified by operators prior to use each day. Audible and visual alarms will indicate loss of negative pressure. The glovebox is designed to capture the entire liquid volume of a projectile or DOT bottle.

D-12a(4) Description of Monitoring the PDS, EE, and at mid-bed and exhaust of the CAFS

Monitoring for GB agent, using near real time (NRT) monitoring with Miniature Continuous Air Monitoring System® (MINICAMS®) and Depot Area Agent Monitoring System (DAAMS) for confirmation, will take place IAW with the Site Specific monitoring plan (Attachment D-2). A MINICAMS® trailer will be located next to the EE. Monitoring for worker protection inside the EE and PDS and at mid-bed and exhaust of the CAFS will be initiated prior to the first item to be sampled being brought into the EE, and will continue until operations are completed.

MINICAMS® are equipped with an alarm that is set to warn of potentially dangerous conditions. For operations, the alarm level for GB will be at 0.70 vapor screening level (VSL). MINICAMS® alarm levels are set to comply with Army guidance which requires a NRT instrument to alarm with a 95% confidence at the VSL. The VSL is equivalent to the absolute short-term exposure limit (STEL) concentration, but it is independent of a designated sampling time and may be used for worker protection/notification and to define the level of item cleanliness. The STEL is the maximum concentration to which unprotected workers may be exposed for up to 15 minutes. NRT monitoring uses a sample collection and analysis time of less than 15 minutes.

During operations, monitoring of the PDS, EE, and the CAFS carbon mid-bed will be continuous. If agent is detected (at the alarm level) between the two carbon mid-beds, operations will be halted and the mid-bed monitoring point will be moved to the CAFS exhaust stack. The first bank of carbon will be removed and containerized for disposal. The second bed of carbon will become the primary bed and a new bed of carbon (3rd set) will become the secondary bed. Once the carbon beds are swapped out, the stack monitoring port will return to the carbon mid-bed.

D-12a(5) Other

The sampling facility will include an air compressor, power distribution and trailers for storage, and the ECBC analytical laboratory. A CP will be located on the site. This CP is the control/ supervisor post for the operation facility. Closed Circuit Television (CCTV)
cameras and communication equipment such as radios or cell phones will be monitored from the CP. Normal personnel inside the CP will include the Operations Supervisor, Site Safety Representative, Operations Project Manager, and/or an ACWA representative.

D-12b. Transport the Munitions from Chemical HWSU to Sampling Location and Return to a Chemical HWSU Once the Sample is Acquired

The general process steps for movement and transporting of the chemical projectile to and from the sampling facility are identical to the steps identified in applications/Module: Module III, Part D-Tab 1 of the Chemical Storage Permit Application. The general steps are listed below.

Chemical munitions are stored on pallets in permitted chemical HWSUs inside the CLA. The chemical HWSUs are earthen-covered bisection cylindrical structures and constructed with concrete to ensure the safe storage and containment of munitions. The 8 inch GB projectiles are stored 6 to a pallet, secured with steel banding.

The general process steps for movement of the GB projectiles from the respective HWSU to the sampling facility, and back to a designated GB HWSU is as follows:

1. A 1,000 CFM carbon filter will be deployed to the respective chemical HWSU, tested, and attached prior to a planned operation.
2. First Entry Monitoring (FEM) will be performed.
3. Identify the projectile to be sampled
4. A forklift will be used to carefully remove pallets from stack. Caution will be exercised when approaching and lifting pallets. All forklifts shall have current load test/inspection due date as per Army requirements.
5. Ground guides (human spotters) shall be used and are intended to ensure that only the pallet or pallets being moved are engaged with the forklift tines.
6. Each worker is responsible for observing the actions and eyes of other workers for evidence of agent exposure, and observing items or containers for evidence of leakage.
7. Pallet will be moved with forklift tines as close to the floor as possible and one pallet high. Forklift may carry two horizontally banded pallets of projectiles during movement(s) inside the HWSU.
8. Pallet will be placed on the floor and un-banded.
9. Designated projectile/projectiles will be removed (non-leaking chemical munition) from the pallet and placed into an overpack/SRC.
10. The overpack projectile will be moved by hand (two person min) or fork lift from the HWSU and placed onto flatbed truck and secured.
11. Pallet will be re-banded and placed back into normal storage configuration.
12. HWSU door will be closed and secured.
13. The overpacked projectile will be transported to sampling facility.
14. Overpacked projectile will be removed from flatbed truck and placed in EE.
15. The overpack will be monitored within the EE to ensure it did not leak during transportation.
16. Sampling operations will be performed.
17. Upon completion of the sampling operation, the projectile and sampling material will be cleared out of the glovebox. The plugged projectile will be placed back into the SRC. A hazardous waste label will be placed on the SRC and dated. The sample will be prepared for shipment.
18. The overpacked projectile and/or prepared samples will be moved by hand (two person) or fork lifted to the flatbed truck and secured.
19. Transport overpacked projectile and/or prepared samples to designated GB HWSU “GH”.
20. First Entry Monitoring will be performed on the designated GB HWSU.
21. The overpacked projectile and/or prepared samples will be moved into the designated GB HWSU.
22. The overpacked projectile and/or prepared samples will be monitored to ensure no item leaked during transportation.
23. The overpacked projectile and/or samples will be placed into the designated HWSU.
24. HWSU door will be closed and secured.
25. The HWSU will be monitored according to BGAD permit.

D-12c. Description of the Process to Obtain the Material Inside the GB-filled Projectiles

The operations will occur within a glovebox located within the EE. The glovebox and the EE will be under engineering controls. Only one item will be processed at a time. In general, the item to be sampled will be placed in the glovebox and secured. The remote drilling device (Monica® or equivalent system) will be attached to the item being sampled. [See Attachment D-1, a general Monica® brochure showing a typical remote drill system and drill bit assembly]. The device is affixed by utilizing suction pads. An operator in the EE facility CP or monitoring building will begin the remote drilling process utilizing the remote drilling control module and CCTV. After the device has completed the drilling process, operators will detach the drilling mechanism leaving the drill bit assembly attached to the munition (the drill bit assembly is designed to be used as a sampling port and plug). Operators will then use a tool to remove the sample disc from the center of the drill bit allowing access to the contents of the munition. With use of tygon (or equivalent) tubing and a peristaltic pump, GB will be transferred from the projectile into a graduated cylinder/beaker. The contents of the cylinder will then be transferred into a DOT bottle. The sampling port on the projectile will be capped with a stainless steel or Teflon fitting. The DOT bottle will be plugged.

Once the sampling is complete and closure is in place, the projectile will be decontaminated, removed from the holder, monitored, placed back into an SRC, and transported by flatbed truck to a designated GB HWSU.
In the event the remote drilling devices fail to operate, a handheld cordless drill will be used. The operator will control the handheld drill using the gloves built into the glovebox. The primary unit will be the remote controlled drilling device and the secondary device is the handheld drill.

The general operational steps are as follows:

1. Place the item to be sampled within the glovebox.
2. Secure the item within the glovebox.
3. The area to be drilled will be carefully cleaned with sodium hypochlorite spray and alcohol wipes.
4. The appropriate sized drill bit assembly will be installed on the drilling device. The drill bit assembly includes a means to restrict the depth of intrusion into the metal surface of the munition body. The drill bit assembly is designed to pierce the surface of the item, seal, and provide a sampling port to collect the sample.
5. Using the primary remote drilling device, the device will be secured on the GB-filled item and connected to the control unit. The remote drilling will be conducted by an operator using CCTV and a remote drilling device controller located in the CP or monitoring shelter.
6. Operator will begin the remote drilling process utilizing the remote drilling control module and CCTV.
7. Operator will detach the drilling mechanism leaving the drill bit assembly attached to the item (the drill bit is designed to be used as a sampling port and plug).
8. Operators will use a tool to remove the sample disc from the center of the drill bit assembly allowing access to the contents of the item.
9. Utilizing tubing and a peristaltic pump (or equivalent devices), the operator will transfer/remove a specific amount of agent out of the munition into a graduated cylinder/beaker.
10. Utilizing the tubing and pump, agent is then transferred from the cylinder/beaker to a DOT bottle.
11. Decontaminate tubing and cylinder/beaker.
12. The sampling port on the drill bit assembly will be capped with a stainless steel or Teflon fitting (or equivalent closure devices).
13. The DOT bottle will be plugged.
14. The projectile will be decontaminated, removed from the holder, monitored, placed in an SRC, and transported by flatbed truck to a designated Chemical HWSU.
15. The DOT (sample) container with GB will be decontaminated, monitored, removed from the glovebox, prepared for shipping, and placed into temporary storage in a designated Chemical HWSU awaiting shipment to CTF. The sample will be shipped to the CTF on a bill of lading. The DOT bottles (samples) will be shipped under a bill of lading and chain of custody.
16. Note: If the agent in the round has solidified to a point where the necessary quantity of liquid (1-liter) sample cannot be drawn, the projectile will be sealed and processed out of the glove box, overpacked and returned to a designated HWSU. The sampling process will continue with another GB projectile with the same stabilizer until the proper amount of agent is collected.

D-12d. Shipment of Chemical Agent Samples

1. The samples will be moved to their respective storage locations, or directly packaged for shipment to ECBC CTF for sampling/analysis, evaluation, and/or Treatability Study.

2. The Department of Transportation (DOT) requirements for packaging, marking, labeling and placarding will be followed.

3. Under analytical-sample exemption (401 KAR 31:010 Section 4 (5 & 6)/ 40 CFR 261.4 (d & e)), the samples will be shipped under a bill of lading and chain of custody.

4. Once analysis and/or evaluation is/are completed, the remaining components of the samples will remain and be managed at ECBC CTFd. These samples will not be returned to BGAD.

D-12e. General Safety and Emergency Preparedness

To assure general safety and emergency preparedness, the site is equipped with emergency generators. The emergency generator will have the same capability as the primary generator to power the sampling facility. Fire extinguishers will be located inside the EE, lab, and vehicles. Appropriate decontamination solutions will be available for use for decontaminating both personnel and equipment. Medical support will be provided by BGAD. Standby rescue personnel will be available during sampling operations. Workers will be dressed in the appropriate level of protection IAW site/operational procedures.

Material spills at the sampling facility and/or agent spills contained inside the glovebox or EE will be decontaminated/remediated by on site trained personnel. The operation supervisor or their designee will report spills or upset conditions outside engineering controls to BGAD’s Emergency Operations Center (EOC). For the GB sampling operations, the Operational Supervisor or their designee will serve as the On-Scene Coordinator (OSC).

For a chemical event (agent outside engineering controls), BGAD’s Installation Emergency Response Plan, Annex C, Chemical Accident/Incident Response and Assistance (CAIRA) Plan will be followed. A copy of BGAD’s CAIRA Plan is located in Module III, Part G of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste
Storage Permit Renewal Application for Chemical Munition Related Items referenced in the Part B of this document.

The BGAD’s CAIRA Plan constitutes Annex C of the BGAD Installation Emergency Management Plan. BGAD Commander or designee serves as the Initial Response Force Commander (IRFC) and Incident Command (IC) [also known as the Emergency Coordinator] from the onset of a non-CAIRA or CAIRA event. The BGCA Commander works under the operational control (OPCON) of BGAD Commander for all CAIRA activities. The BGAD Commander has appointed qualified On-Scene Coordinators (OSCs). The OSCs will be the most qualified person on the scene for the situation present. For example, in the event of a chemical accident the most senior chemical person will establish on scene incident command; in the event of a security related incident, OSC will be performed by senior Directorate of Emergency Services first responder on the scene; and in the event of a fire, OSC will be performed by the senior firefighter first responder.

D-12f. Information About Waste Generated During the Sampling and Analysis Process

Wastes that will be generated during the sampling operation and closure of the site include SDS, agent-contaminated plastic and PPE, agent-contaminated spent carbon and HEPA filters, laboratory wastes, and miscellaneous agent-contaminated metal parts. Hazardous wastes will be collected in containers in a SAA or less than 90 day storage area located at the site, followed by transport to HWSU LO for disposal IAW Module III, Part D-1 of the Chemical Storage Permit Application. Agent contaminated wastes carry the Commonwealth of Kentucky hazardous waste number - N001. Lab Waste associated with treated GB waste will carry Kentucky hazardous waste number - N701. Agent headspace monitoring or generator knowledge will be used for characterization.

D-12g. Contingency

Contingency Plan is covered in Part G of this document. Part G incorporates Part G of the BGAD RCRA Hazardous Waste Storage Permit Renewal Application for Chemical Munition Related Items (Module III). Authority and responsibilities of the IC are identified Part G of Module III, and BGAD’s CAIRA Plan.
Figure D-1. Sampling Facility Location
PDS – Personnel Decontamination Station
CAFS – Chemical Agent Filtrations System
C/Air – Cascade Air Supply

Figure D-2. General Sampling Facility Layout
(Actual layout may vary from the layout above)
Figure D-3.
Typical Photo of Environmental Enclosure (EE) and Personnel Decontamination Station (PDS)
Figure D-4.  
Typical Glovebox
The 8-Inch GB Filled Projectiles at BGAD Do Not Contain Energetic Materials
Figure D-6

Typical

Single Round Container (SRC)
Figure D-7

Typical

DOT Bottle

For Reference Only
Figure D-8  Typical 6,000 cfm filter unit; NTS

**SYSTEM COMPONENTS**

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<th>TERM</th>
<th>DESCRIPTION</th>
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<tr>
<td>1</td>
<td>DISTANCE TO FLAP BLADE DAMPER</td>
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<tr>
<td>2</td>
<td>CASING SPARK RAMP/NOX REFLECTING HOUSING</td>
</tr>
<tr>
<td>3</td>
<td>GR1-100 10% NOx CARBON ADSORBER CHANGING</td>
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<tr>
<td>4</td>
<td>SPRING TENSION HOUSING</td>
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<tr>
<td>5</td>
<td>HORIZONTAL FAN MODEL 920-160 10 HP 230 V (1) 3PH (1)</td>
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**GENERAL NOTES**

1. TWO (2) UNITS INSTALLING, SHOWING LEFT AND ACCESS.

2. A MINIMUM FOUR FEET OF CLEARANCE IN FRONT OF THE ACCESS DOOR IS RECOMMENDED FOR FILTER CHANGEOUT.

3. UNIT IS DESIGNED TO ACCOMMODATE THE FOLLOWING FILTERS:
   - NINE (9) DOPING (NON) PRE-FILTERS
   - EIGHT (8) SIZES 1010MM MERV 8 CARBON FILTERS
   - EIGHT (8) SIZES 1010MM MERV 8 FINAL FILTERS

4. AN INITIAL SET OF BAGS AND STRAPS SHALL BE INCLUDED.

5. HOUSING SHALL BE CONSTRUCTED FROM 1/20 gauge 120A (1) 14GA (1) SAE J515.

6. HOUSING HARDWARE WILL BE 304 SERIES 304 EXCEPT FOR ALUMINUM FLAP FANS AND BRASS LOCKING TRAY FAST.

7. UNIT TESTED AS ASME B31.1, 1/4\(\) 1006 REINFORCED TO 14 s.W.P.

8. ONE (1) FILTER REMOVAL TRAY SHALL BE PROVIDED.

9. SPARE FAN TO SHIP SEPARATE.

**GAGE INFORMATION**

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<tr>
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<th>MODEL</th>
<th>TYPE</th>
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**RECORD DRAWING**

**P&G MANUFACTURING**

WASHINGTON D.C. 27169
PHONE NO. 253-465-9110
FAX NO. 253-396-8821

**CHARTER HALL**

NMD CARBON FILTER UNIT

20 June 2017
Figure D-9  Typical 2,500 CFM filter unit; NTS

RECORD DRAWING

P&G MANUFACTURING

WARNING ON C.G. 2/705
PHOENIX ABCOMP 3121

GENERAL NOTES
1. 25-34 CFM; 19, 28, 40, 58, 72, 115, and 182 CFM.
2. A MINIMUM FOUR (4 FEET OF CLEARANCE IN FRONT OF THE ACCESS DOOR IS RECOMMENDED FOR FILTER CHANGEOUT.
3. UNIT IS TO BE SupPLIED WITH THE FOLLOWING FILTERS:
   (a) 0.3-μM PARTICLE FILTER;
   (b) 1.0-μM PARTICLE FILTER;
   (c) 10-μM PARTICLE FILTER;
   (d) 50-μM PARTICLE FILTER.
4. HOUSING SHALL BE CONSTRUCTED FROM 11SA AND 14OA.
5. HOUSING SHALL BE HEATED TO 100°F FOR EQUIPMENT.
6. HOUSING SHALL BE DESIGNED TO BE EASY TO SERVICE.
7. ACCESS DOOR TO BE REMOVABLE.
8. ACCESS DOOR TO BE INCLUDED.
9. SEE SHEET 15 FOR SPECIFICATIONS.
10. SEE SHEET 14 FOR ADDITIONAL DETAILS.
A new way of thinking about CBW Disposal.

Fast sampling & disposal using invasive technology

The MMIC Monica equipment is the first system to offer a complete solution for the disposal of CBW in conventional or improvised devices. Utilizing innovative technology it is the only equipment capable of invasively interrogating any device without leakage into the surrounding environment. One seal penetration gives access for sampling, disposal or visual investigation. CBEx has never been simpler.

100% Certainty

Most CBW threats will be deployed or stored in a sealed container but standard chemical agent monitors depend on an agent release into the environment for them to function. Non-invasive detection methods, such as neutron activation analysis, will provide information on the elemental composition of materials but not direct evidence of their chemical structure. The only totally reliable technique for the analysis of the contents is to take a physical sample. Monica offers a field proven capability to sample and dispose of any chemical or biological threats, regardless of vessel without contaminating the environment.

Applications

- Conventional CBW or CBIED sampling and disposal.
- Sampling of any chemical agents or TICs, gas, liquid or powder.
- In-situ decontamination or neutralisation without agent release.
- Separation of agent and explosive elements.
- Further investigation using endoscope or other devices.

Attachment D-1.
General Monica® Brochure Showing a Typical Remote Drill System and Drill Assembly (sheets 1 of 2)
4 Step Operational Sequence

Step 1 - Attach
Using Monica’s unique vacuum system the drilling head can be attached to any diameter of target regardless of shape or surface condition. An experienced operator can fix Monica in less than 30 seconds after arrival. The drilling head has no significant EM or RF signature.

Step 2 - Drill
Monica’s innovative drilling system can drill any metal (including stainless steel) or plastic in under 2 minutes. The compressed air motor cools the probe and target surface as it drills. The whole operation can be completed from up to 500m away with simple controls which provide feedback to the operator.

Step 3 - Sample
The MMIC sampling system can extract a sample of any known agent in gas, liquid or powder forms. O-ring seals ensure no agent is released. Once sampled the syringe contents can be analysed readily by Raman spectroscopy. The result can be double checked using GCMS on the physical sample if required.

Step 4 - Dispose
Using the same penetration for the sample, the agent can be pumped from the target for disposal using the MMIC MATS system. Alternatively decontamination can be pumped into the target for in-situ neutralisation of the contents.

Performance Data
- Power: 1hp compressed air motor
- Materials: All metals, composites, plastics & wood
- Agents: All, including powders and viscous liquids
- Target Dimensions: Wall Thickness: 1.6mm to 20mm
- Diameter: 75mm to flat plate
- Target attachment: Flexible, vacuum feet
- Max Internal Pressure: 120psi
- Drilling Time: 1 to 3 minutes

Advantages
- Fast - Disposal under 20 minutes from arrival.
- Simple - Designed to be used intuitively in full NBC protective clothing.
- Portable - Can be easily carried by 2 man-team.
- Safe - System ensures no agent release in the event of a power failure.

Further Information
More information can be found at www.mmic-eod.co.uk or contact us as mail@mmic-eod.co.uk

Attachment D-1 (cont.).
General Monica® Brochure Showing a Typical Remote Drill System and Drill Assembly (sheets 2 of 2)
Attachment D-2.

Site Specific Air Monitoring Plan
for the Sampling Operation in Support of the
Blue Grass Chemical Agent – Destruction Pilot Plant (BGCAPP)
Located on the Blue Grass Army Depot (BGAD)

The most current copy of the Facility Monitoring Plan
will be available at the Sampling Facility
EDGEWOOD CHEMICAL BIOLOGICAL CENTER
CHEMICAL BIOLOGICAL APPLICATIONS AND RISK REDUCTION
ENVIRONMENTAL MONITORING LABORATORY

SITE SPECIFIC AIR MONITORING PLAN
FOR GB SAMPLING OPERATION IN SUPPORT OF
THE BLUE GRASS CHEMICAL AGENT-DESTRUCTION PILOT PLANT (BGCAPP)
LOCATED ON THE BLUE GRASS ARMY DEPOT (BGAD)

June 2017
Revision A

U.S. ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
FOR BLUE GRASS ARMY DEPOT GB SAMPLING EXTRACTION OPERATION

June 2017

Revision A

Approved By:

X

Record of Change

Revision A: document
Acronym List

AEL- airborne exposure limit  
BGAD- Blue Grass Army Depot  
BGCA- Blue Grass Chemical Activity  
BGCAPP- Blue Grass Chemical Agent-Destruction Pilot Plant  
CAFS- Chemical Agent Filtration System  
CBARR- Chemical Biological Application and Risk Reduction  
CMA- Chemical Materials Agency  
CP- Command Post  
DAAMS- Depot Area Air Monitoring System  
DA PAM- Department of the Army Pamphlet  
ECBC- U.S. Edgewood Chemical Biological Center  
EDT- Explosive Destruction Technology  
EE- Environmental Enclosure  
EML- Environmental Monitoring Laboratory  
GB- Sarin (Isopropyl methanefluoro-phosphonate)  
IOP- Internal Operating Procedure  
LCOs- Limiting Conditions of Operation  
LMQCP- Laboratory and Monitoring Quality Control Plan  
MCCF- MINICAMS Confirmation  
MCP- Monitoring Concept Plan  
MINICAMS or MC- Miniature Continuous Air Monitoring System  
NRT- Near Real Time  
OPCW- Organization for the Prohibition of Chemical Weapons  
PDS- Personnel Decontamination Station  
PPE- Personnel Protective Ensemble  
QC- Quality Control  
STEL- Short Term Exposure Limit  
VSL- Vapor Screening Level  
WPL- Worker Population Limit
1.0 INTRODUCTION

This document serves as the site-specific air monitoring plan to support the GB sampling operations confirming agent type of munitions to be destroyed at the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) Explosive Destruction Technology (EDT) Facility. This plan addresses the air monitoring requirements as specified in the U.S. Army Chemical Materials Agency (CMA) Programmatic Monitoring Concept Plan (MCP), the CMA Programmatic Laboratory and Monitoring Quality Assurance Plan (LMQAP), and the U.S. Army Edgewood Chemical Biological Center (ECBC) Environmental Monitoring Laboratory (EML) Laboratory and Monitoring Quality Control Plan revision 2, December 2011.

2.0 OBJECTIVE

This plan establishes the policies, objectives, and responsibilities for the execution of the monitoring program to support sampling operations for the BGCAPP. The plan identifies the chemical of concern and describes the rationale for monitoring strategies and equipment used during operations.

The objectives of site monitoring are:
- Provide worker and environmental protection by conducting analyses for the chemical of concern and,
- Provide early warning of potential releases of the chemicals of concern.

3.0 MONITORING RESPONSIBILITIES

The responsibilities of the ECBC EML are:
- Provide guidance on monitoring operations conducted on site.
- Provide certified equipment, methods, and personnel capable of generating defensible monitoring data to be incorporated into the ECBC EML 40-year database.
- Provide trained and certified personnel to operate air monitoring and laboratory equipment.
- Perform monitoring procedures as outlined in the project scope of work, EML laboratory quality assurance programs, and this monitoring plan.
- Collect and retain all air monitoring data generated during this project.
- Conduct project-specific on-site air monitoring and sample analyses to support operations.

4.0 CHEMICALS OF CONCERN

The chemical of concern for this operation is the nerve agent sarin (GB).

4.1 AIRBORNE EXPOSURE LIMIT (AEL)
An airborne exposure limit (AEL) is a general term that describes the maximum allowable air concentrations for occupational and general population exposure to chemicals. AELs for chemical warfare agents are published in the Department of the Army Pamphlet (DA PAM) 385-61 (2008) Table 2.1.

Table 1: Airborne Exposure Limits for the Chemical of Concern

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Abbreviation</th>
<th>CAS Number</th>
<th>STEL/VSL</th>
<th>WPL</th>
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<tr>
<td>Sarin, Isopropyl methanefluorophosphonate</td>
<td>GB</td>
<td>107-44-8</td>
<td>0.0001mg/m³</td>
<td>0.00003mg/m³</td>
</tr>
</tbody>
</table>

4.1.1 Worker Population Limit (WPL)

The WPL is the maximum allowable 8-hour time-weighted average concentration that an unmasked worker could be exposed to for an 8 hour workday, 40 hours per week, for 30 years without adverse effect. There is no health significance from a single or short-term exposure at this concentration. Low level monitoring using either a near real-time (NRT) monitor or a historical monitor is conducted if unmasked workers are present in an area where chemical agent contamination may be present.

4.1.2 Short Term Exposure Limit (STEL)

The STEL is the maximum concentration to which unprotected chemical workers may be exposed for up to 15 minutes. ECBC conducts near real-time (NRT) monitoring using a sample collection and analysis time of less than 15 minutes. Therefore, NRT monitoring is technically conducted at the vapor screening limit in areas where chemical agent may be present. This monitoring is designed as an early warning system to notify workers of possible chemical agent in the environment.

4.1.3 Vapor Screening Level (VSL)

The VSL is equivalent to the absolute STEL concentration, but it is independent of a designated sampling time and may be used for worker protection/notification and to define the level of item cleanliness.

5.0 GENERAL MONITORING APPROACH

EML personnel will conduct monitoring for a variety of purposes, as described below. A summary of monitoring locations is provided in Table 2. NRT monitoring will be performed using Miniature Continuous Air Monitoring Systems (MINICAMS®) operated
in accordance with EML Internal Operating Procedure (IOP) MT-2. Depot Area Air Monitoring System (DAAMS) monitoring will be performed using EML IOP MT-11.

DAAMS will be used for both historical and NRT alarm confirmation purposes. Historical DAAMS monitoring will be performed in accordance with Table 2. Historical DAAMS samples are collected daily and analyzed. Confirmation DAAMS samples will be collected concurrently with all NRT locations except for the PDS location. DAAMS will be immediately available at the PDS location, but only activated if required. Confirmation DAAMS are only analyzed in the event of a collocated NRT alarm.

5.1 Work Space Monitoring

Work space monitoring (NRT and confirmation) will be performed in the workspace at the front of the glove box and at the unpack area/sample table, within the environmental enclosure. Changes in Personnel Protective Ensemble (PPE) will be addressed in the work plan and the health and safety plan. Work space monitoring will serve to notify workers of chemical concentrations in the area.

Confirmation monitoring, to validate or invalidate a MINICAMS® alarm will use DAAMS tubes collocated at the NRT monitoring location.

5.2 Chemical Agent Filtration System

Chemical Agent Filtration System (CAFS) will be used to ventilate the environmental enclosure. The dedicated MINICAMS® monitoring each CAFS will operate in conjunction with an automatic stream selection system that allows collection and analysis of samples at each of the three levels of the CAFS mid-bed to identify any agent migration past the first carbon bed. The stream lock feature will be enabled during normal operations. If three consecutive alarms occur at the mid-bed location, monitoring will be manually switched to the filter exhaust position of the filter unit. Each filter unit will have a dedicated MINICAMS® unit.

5.3 Personnel Decontamination Station (PDS) Monitoring

A single MINICAMS® unit will be dedicated to provide monitoring for potentially exposed personnel and/or chemical casualties. A DAAMS will be placed within the PDS and be ready for activations should the MINICAM alarm. Therefore, confirmation DAAMS will be immediately available but only collected if required for NRT alarm confirmation.

5.4 Decontamination Verification Monitoring

Decontamination verification monitoring is performed to determine the level of cleanliness of an item after it has been surfaced decontaminated by approved procedures. All items monitored to determine level of cleanliness shall be bagged or contained to trap vapors. The ECBC EML utilizes a headspace procedure for determining the level of cleanliness. This does not apply to a decontaminated liquid, detoxified liquid, soil, or a gas. Some items may be released from Government control
if appropriate monitoring is performed to below the General Population Limit (GPL) and all Federal, State and local provisions have been met.

6.0 SITE SPECIFIC MONITORING LOCATIONS

Figure 1 shows the projected monitoring locations. The final layout and monitoring locations will be determined during the operational readiness review.

6.1 Glovebox

A single MINICAMS® unit will be used to monitor the workspace in front of the glove box. DAAMS samples for MINICAMS® alarm confirmation will be co-located with the sample line for this location.

6.2 Unpack Area/Sample Table

A single MINICAMS® unit will be used to monitor the area at/around the unpack area/sample table. DAAMS samples for MINICAMS® alarm confirmation will be co-located with the sample line for this location. This location may be used for headspace monitoring as required.

6.3 Personnel Decontamination Station (PDS)

A single MINICAMS® unit will be used to provide monitoring for chemical casualties in the PDS.

6.4 Chemical Agent Filtration System (CAFS)

A single MINICAMS® unit configured with a stream selection system will be used to monitor each filtration unit. Each unit will have up to 3 mid-bed locations and an exhaust location. The mid-beds will be the default monitoring location, with each level monitored sequentially. Upon 3 consecutive alarms at a mid-bed location, the MINICAMS® operator will manually set the stream selector to monitor the filter exhaust of the filter unit that went into alarm.

DAAMS samples for MINICAMS alarm confirmation will be collected at each CAFS location. Historical DAAMS samples will be collected at the inlet to the CAFS. If a common duct is used to connect multiple CAFSs, the historical sample will be located in the common duct.

6.5 Head Space Monitoring

The MINICAMS® at the unpack area/sample table will also be available for head space monitoring for operational purposes and for decontamination verification as required. Head space monitoring is performed to verify that items are not actively off-gassing chemical agent. Decontamination verification monitoring must meet the requirements found in section 5.4. DAAMS may be used for headspace monitoring.
<table>
<thead>
<tr>
<th>NRT Location No.</th>
<th>Location Description</th>
<th>MINICAMS ®</th>
<th>NRT Confirmation (DAAMS)</th>
<th>Historic DAAMS (WPL)</th>
<th>Comments/reason for monitoring</th>
<th>Compliance Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Glove box</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Workspace Monitoring</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Unpack Area/Sample Table</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Workspace Monitoring and Headspace Monitoring</td>
<td>No</td>
</tr>
<tr>
<td>n/a</td>
<td>Historical workspace at CAFS inlet</td>
<td>No</td>
<td>N/A</td>
<td>yes</td>
<td>Historical monitoring of the EE</td>
<td>No</td>
</tr>
<tr>
<td>3-1 3-2 3-3 3-12</td>
<td>Filter 1, Midbed 1 Filter 1, Midbed 2 Filter 1, Midbed 3 Filter 1, Exhaust</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Verify Midbed Integrity and Environmental Protection</td>
<td>Yes; (Filter Exhaust)</td>
</tr>
<tr>
<td>4-1 4-2 4-3 4-12</td>
<td>Filter 2, Midbed 1 Filter 2, Midbed 2 Filter 2, Midbed 3 Filter 2, Exhaust</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Verify Midbed Integrity and Environmental Protection</td>
<td>Yes; (Filter Exhaust)</td>
</tr>
<tr>
<td>5</td>
<td>PDS</td>
<td>Yes</td>
<td>Yes (available)</td>
<td>No</td>
<td>Monitoring for potentially exposed workers/chemical casualties</td>
<td>No</td>
</tr>
</tbody>
</table>
7.0 Reporting Detections of Chemicals of Concern

7.1 MINICAMS® Alarms

MINICAMS® are equipped with an alarm that is set to warn of potentially dangerous conditions. For operational, the alarm level for GB is 0.70 VSL. MINICAMS alarm levels are set to comply with Army guidance which require a NRT instrument to alarm with a 95% confidence at the VSL. During operations (GB-item within the EE) monitoring will be continuous.

7.2 MINICAMS® Alarm Communication and Confirmation

MINICAMS® alarm results will be communicated to the GB facility command post (CP). Actions taken regarding workers and site personnel will be dictated by the ECBC site safety representative/site supervisor. Three consecutive MINICAMS® alarms require DAAMS confirmation, in accordance with EML IOP MT-02, MT-11 and MT-13.

7.2.1 MINICAMS® Alarm – A single event when the MINICAMS® result exceeds the alarm set point. The CP is notified by the MINICAMS® operator. The operator reports the MINICAMS® reading in VSL units.

7.2.2 MINICAMS® Ring-off – Three consecutive alarms from a MINICAMS®. Confirmation is required for all chemical agent ring-offs except for head space monitoring.

7.2.3 Confirmed Ring-off – If DAAMS results confirm a MINICAMS® ring-off, the event is considered confirmed. The concentration report for the event will be based on the MINICAMS® readings, reported in mg/m³.

7.3 Suspension of Monitoring/Alarm confirmation

In cases where an area has been confirmed to contain agent vapors and appropriate safety measures have been implemented, reconfirmation (continued analysis of MINICAMS® confirmation samples) may be suspended at that location. The decision to suspend confirmation sampling will be based on guidance from the site safety representative and concurrence from EML/CBARR management or their designee. Reconfirmation will resume as soon as conditions return to normal based on guidance from the site safety representative and concurrence from EML/CBARR management or their designee.

7.4 Reporting Results from Multiple Methods

If two class I methods report different values for the same item/sample/event, the greater of the two results shall be used.

8.0 DATA REPORTING

The EML shall report daily analytical results in analytical/situation report. The following information will be included in the report if available: (1) date of analyses (2) sampling location (3) analyst name (4) EML field sample identification number (5) client sample
identification number (6) results for each analysis, including units. The daily analytical report will be retained on site during the sampling operations.

9.0 QUALITY CONTROL (QC)

9.1 Certification

9.1.1 Method Certification

Site specific method precision and accuracy studies will be performed before the start of operations, in accordance with the EML Laboratory and Monitoring Quality Control Plan (LMQCP, Revision 2, December 2011). Previous studies performed on site may fulfill this requirement. All methods used to support worker and environmental protection will meet ECBC EML class I method certification requirements. Waste evaluation methods shall meet the requirements outlined in the site waste analysis plan. Documentation of successful method certification will be available upon request.

9.1.2 Operator Certification

All individuals performing monitoring activities will be certified in accordance with EML certification requirements as described in the EML LMQCP (Revision 2, December 2011). Documentation of successful certification will be available upon request.

9.1.3 Instrument Certification

All instruments used to generate monitoring data will meet instrument certification requirements described in the EML LMQCP (Revision 2, December 2011). Documentation of successful certification will be available upon request.

9.2 Calibration and Challenge

9.2.1 MINICAMS® Calibration

Calibration requirements for MINICAMS are found in EML IOP MT-02 and the EML LMQCP (Revision 2, December 2011).

9.2.2 MINICAMS® Challenge

After successful initial calibration, all MINICAMS® will be challenged before operations begin, every 4-5 hours during operations, and at the end of the operational day.

9.3 Corrective Action

Corrective action will be initiated based on the results of routine internal QC checks. Corrective action will be initiated when potential or existing conditions are identified that may adversely affect data quality. Events that require corrective action include violation of approved analytical procedures, out-of-control conditions, and non-conformances as described in the EML LMQCP (Revision 2, December 2011). The need for corrective
action must be documented and reported to the ECBC site supervisor. The corrective action may be immediate or long term. An immediate corrective action may be the recalculation of results, reanalysis of samples, or repeat of sample collection. A long term corrective action may require an increase in the number of QC samples, more frequent calibration and checks, or replacing monitoring equipment.

9.4 Data

During the project, ECBC will maintain control over all results and data generated from the analyses. All monitoring operations will be conducted in accordance with the EML LMQCP (Revision 2, December 2011) and EML IOPs. ECBC will incorporate the data generated into the Environmental Monitoring Laboratory 40-year data storage program, should access to additional information be required.

10.0 LIMITING CONDITIONS OF OPERATION

Operations during this project are governed by limiting conditions of operation (LCOs). Each day the site manager/designee will determine that all LCOs have been met. The monitoring LCOs are: sufficient number of certified operators, sufficient calibration and challenge standards available, all instruments actively supporting operations are calibrated and in control, a sufficient number of instruments are available to support operations, sufficient confirmation/historical monitoring equipment is available. Sufficient numbers of personnel and equipment will be determined by the site manager or EML designee.
Figure 1: Typical Layout of Monitoring Locations

* Final layout and monitoring locations will be determined during the operational readiness review.

CAFS - Chemical Agent Filtration System
EE - Environmental Enclosure
MC - Miniature Continuous Air Monitoring System
MCCF - Mini CAM Confirmation
PDS - Personnel Decontamination Station
WPL - Worker Population Limit

Groundwater monitoring requirements are not applicable. The chemical operations within the EE are not land-based disposal units. The EE unit is designed to contain and control all releases, thereby preventing impacts to the groundwater. Although the EE unit manages chemical wastes that contain free liquids (i.e., projectiles and DOT bottles), the design and hazard prevention procedures of the EE unit provide protection for the environment and general public, eliminating the requirement for groundwater monitoring in the vicinity of the sampling facility.

In addition, the CLA does not contain any identified solid waste management units that require groundwater monitoring.
Part F: Procedures to Prevent Hazards [401 KAR 34:020]

F-1. Security

F-1a. Waiver

No waiver from the security requirements is requested.

F-1b. Security Procedures and Equipment

F-1b(1). 24-Hour Surveillance System

The facility is divided into two main areas in relation to operations. The administrative area, where there are no applications for permitted hazardous waste storage facilities, and the restricted area, which includes a highly secured area designated as the CLA. Chemical agent surety items are managed within BGAD’s CLA which include storage, chemical operations to support storage and demilitarization, and demilitarization.

BGAD guards patrol all areas of the facility. There are security checkpoints at the entrance to each area. Personnel and vehicle access is limited at the main entrance (administrative area) which is guarded 24-hours/day.

Extraordinary precautions are taken to ensure the security of the CLA. The CLA is fully contained within the restricted area. The CLA is a secure area. Access to the area within the fenced perimeter requires special procedures. Requirements for visitors to obtain permission to enter include health tests, security, and safety procedures. Visitors requiring access into the CLA are provided an escort during their visit into the CLA.

All personnel are required to be cleared for entry into the CLA. All personnel must enter the CLA through a security check point. Vehicles entering and exiting the CLA are thoroughly inspected.

F-1b(2). Barrier and Means to Control Entry

Chemical munitions are stored in magazines/storage units designed to store energetic materials and meet munition storage requirements.

Chain link fences surround the CLA. These fences are separated by a clear area. Each fence is topped with barbed wire. This design forms a buffer zone surrounding the storage igloos in the CLA.

F-1c. Warning Signs

Posted at both entrances to the facility are warning signs that inform visitors and
personnel that they are entering a limited access government facility.

The fences have warning signs posted every 50 yards. A sign at the entrance to the CLA indicates the presence of hazardous waste therein.

At the entrances of the CLA there are signs that state “Hazardous Waste Storage Area Authorized Personnel Only.” The hazardous waste signs at the CLA entrance are in lieu of placing signs on each HWSU or operations in the CLA.

The CLA is located within BGAD’s ammo restricted area. Within the ammo restricted area, personnel are prohibited from smoking and/or carrying open flame devices such as matches or other flammable items. The use of open flame without a flame permit is prohibited in this area. Smoking within the munition area is restricted to designated smoking areas only. With this restriction, the need to place “No Smoking” signs on each HWSU or operations is not considered necessary.

F-2. Inspection Schedule

F-2a. General Inspection Requirements

ACWA will be in charge of the GB sampling operation. The GB sampling operation will occur within the CLA. BGCA is in charge of the HWSUs (igloos) within the CLA. BGAD’s Environmental Office interacts with ACWA and BGCA’s Environmental Office and has oversight of all hazardous waste-related activities at BGAD, BGCA, ACWA, and BGCAPP (main plant and EDT). The respective Environmental Office does announced and unannounced inspections for environmental compliance for their respective organizational activities.

ACWA/BGCA’s operational personnel participate in the implementation of pre-operational inspections of hazardous waste activities related to their waste generation within the CLA. The responsibilities for pre-operational inspections belong to the generators of waste, with each generator responsible for maintaining familiarity with the operational requirements. Deficiencies are dealt with directly when observed and reported to the appropriate management authority for direction if the issue is programmatic or requires management involvement.

Inspections of the operation’s facilities include the inspection of the structure for deterioration and the condition of the operation’s secondary containment systems (EE structure, glovebox, and engineering control system). The current schedule for inspections and results of historic inspections are maintained by Permittee. Records of inspections are maintained by Permittee for a minimum of three years or until clean closure is obtained.
F-2a(1). Types of Problems

Types of problems encountered with each type of equipment are annotated on the inspection schedule in the Table below.

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Description</th>
<th>Types of Problems</th>
<th>Inspection Maintenance Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Monitoring for GB sampling operations</td>
<td>Low level monitoring equipment</td>
<td>Chemical agent standard not in specified range; equipment inoperative</td>
<td>Before and after use daily</td>
</tr>
<tr>
<td>Vehicles</td>
<td>M12A1 Power Driven Decontamination Apparatus</td>
<td>Inoperative</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td>Forklift Trucks</td>
<td>Inoperative</td>
<td>6 months</td>
</tr>
<tr>
<td></td>
<td>Vehicle preventive maintenance</td>
<td>Inoperative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lift testing</td>
<td>Inoperative</td>
<td>Annually</td>
</tr>
<tr>
<td></td>
<td>Flatbed truck</td>
<td>Inoperative</td>
<td>Before Operation</td>
</tr>
<tr>
<td>Safety and Emergency Equipment</td>
<td>M12A1 Power Driven Decontamination Apparatus</td>
<td>Decon equipment inoperative Missing materials or items, leaks or deterioration</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td>Self-contained breathing apparatus (SCBA)</td>
<td>Inoperative pressure levels Seals and valves, missing parts</td>
<td>Annually</td>
</tr>
<tr>
<td></td>
<td>Air Filters</td>
<td>Throughput deterioration</td>
<td>Semi-annual</td>
</tr>
<tr>
<td></td>
<td>Personal Protective Equipment (TAP butyl rubber suits or commercial equivalent)</td>
<td>Deterioration of fabric and/or seal seams</td>
<td>6 Months</td>
</tr>
<tr>
<td>Equipment Type</td>
<td>Description</td>
<td>Types of Problems</td>
<td>Inspection Maintenance Frequency</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------------------------------------</td>
<td>------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Safety and Emergency Equipment (Cont.)</td>
<td>Fire extinguishers - in vehicles</td>
<td>Not charged</td>
<td>Daily during Operating Days</td>
</tr>
<tr>
<td></td>
<td>Fire pumps and hydrant system</td>
<td>Inoperable</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>Fire trucks</td>
<td>Inoperable</td>
<td>Weekly</td>
</tr>
<tr>
<td></td>
<td>Emergency Spill Equipment: Broom, dustpan, drum</td>
<td>Not present Deteriorated</td>
<td>Weekly</td>
</tr>
<tr>
<td></td>
<td>First aid equipment and supplies</td>
<td>Expired shelf life failed to replenish after use</td>
<td>Yearly After use</td>
</tr>
<tr>
<td></td>
<td>Phone emergency telephone system (red phone system)</td>
<td>Inoperative or malfunctioning</td>
<td>Daily During Operating Days</td>
</tr>
<tr>
<td>Security Devices</td>
<td>Perimeter fence</td>
<td>Inoperative or malfunctioning</td>
<td>Twice Daily</td>
</tr>
<tr>
<td></td>
<td>Backup power generator and lighting</td>
<td>Inoperative or malfunctioning</td>
<td>Weekly</td>
</tr>
<tr>
<td></td>
<td>Intrusion detection system</td>
<td>Inoperative or malfunctioning</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td>Warning sirens</td>
<td>Inoperative or malfunctioning</td>
<td>Twice Monthly</td>
</tr>
</tbody>
</table>
### Equipment Type

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Description</th>
<th>Types of Problems</th>
<th>Inspection Maintenance Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE Unit / System: Glovebox, Engineering Control System</td>
<td>Treatment unit: Sampling of Agent filled munitions under engineering controls within EE</td>
<td>Deterioration of EE Unit/system</td>
<td>Each Operational Day</td>
</tr>
</tbody>
</table>

#### F-2a(2). Frequency of Inspections

The EE will be inspected each operational day. The EE will be air monitored during operations. Air monitoring for agent vapor is conducted in lieu of the RCRA-required visual inspections of the containers (munitions). Air monitoring has proven to be an effective early warning tool while adhering to the cardinal principle to limit the potential exposure to a minimum number of personnel, for a minimum period of time, and to a minimum amount of the hazardous material consistent with safe and efficient operations.

#### F-2b. Specific Process Inspection Requirements

##### F-2b(1). Container Inspections

Waste containers from the GB-sampling operation will be stored at a designated less than 90 day storage location and/or HWSU LO. The less than 90 day storage location and/or HWSU will be visually inspected weekly. N-listed hazardous waste containers within will be air monitored (cleared) to less than 1 Vapor Screening Level (VSL).

#### F-2c. Remedial Action

In general, corrective actions for all discrepancies and equipment shortfalls are directed to the appropriate operational supervisor, directorates, and/or divisions for correction through direct discussion, work order, or memorandum. The observing authority handles concerns that don’t require extensive response from other directorates/divisions immediately. Any problems impacting RCRA Permit compliance are reported to Permittee for immediate attention and resolution.
F-2c(1). Leaking Agent Items (Liquid or Vapor Emitting)

When a leaking chemical munition (liquid or vapor emitting) is suspected or detected during visual inspection or air monitoring, the observations are reported immediately to BGAD/BGCA Operation Center (OC) (also known as the Emergency Operations Center (EOC)) by the operational supervisor or their designee, and contingency plan (CAIRA) operations are implemented. During visual inspections, if evidence of leaking liquid is found in a storage unit, the suspected liquid is tested with M-8 paper to determine the presence of agent. If the liquid is determined to be GB, the contaminated area is decontaminated and/or the chemical munition is overpacked. The leaking/vapor emitting chemical munition is located and the pallet containing the leaking/vapor emitting munition is moved to an operation point within the storage unit where the leaking item is then overpacked.

Decontamination mixtures are normally applied with dry wipes soaked in the mixture. This minimizes the generation of decontamination waste. Generally, less than one gallon of decontamination mixture is used. After decontamination, the outside of the container is cleaned with a dry wipe or other absorbent material.

The expended decontamination mixture, wipes, pallets, metal strapping, plastic throws, dunnage, and leather gloves are placed in a DOT approved container (typically a 55-gallon drum, but other sizes may be used). Care is taken that the containers selected are compatible for the characteristics of the waste being generated. The DOT container is relocated to a monitoring shed and the contents are air monitored to confirm that the agent detection level is less than 1 VSL for the respective agent. If the contents are not below the necessary level, the items are again decontaminated until less than 1 VSL has been reached. The containers are then sealed shut with the appropriate mechanism.

F-2c(2). Grounding Protection System

The GB sampling ammunition structures and equipment will be grounded in accordance with National Electric Code, article 250. Prior to operations, the grounding protection system will be tested according to National Electric Code. If deficiencies are noted in the testing of the grounding protection system, the results will be reported to the GB sampling supervisor stating location, date inspected, resistance reading, and remarks including corrective actions taken or required. Correction must be made before operations can occur.

BGAD has a lightning warning system administrated by the EOC. This system will be used for lightning protection, in lieu of installing a lightning protection systems on the temporary (non-ammunition operational) structure.

The EOC sends out notifications to key staff and facilities when lightning is within 20
nautical miles (23 standard miles) of BGAD. Upon notification of an approaching thunder/lightning storm, personnel will place the operations in a safe configuration and evacuate to a safe location. Personnel will return to the operations after notification has been received from the EOC that the thunder/lightning storm is at a distance equal to or greater than 20 nautical miles.

F-2c(3). Personal Protective Equipment (PPE)

Deficiencies resulting from the inspection (testing) of PPE (TAP clothing, commercial equivalent clothing, or masks) could trigger repairs to include parts replacement and retesting. If the item cannot pass the prescribed inspection (testing), it is eliminated from further use. A "passed" item replaces the defective unit in inventory or is issued to the chemical worker.

F-2d. Inspection Log

Copies of inspection forms used in association with the hazardous waste management during the GB sampling operation will include, at a minimum, the following:

- Date and time of inspection.
- Name/signature of inspector.
- Observations made.
- Comments.
- Remedial action requirements.

F-3 Preparedness and Prevention Requirements

F-3a. Waiver

Hazardous waste management facilities are required to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water, which could threaten human health or the environment. No waiver is sought to alter these requirements.

F-3b. Equipment Requirements

F-3b(1). Internal Communications

Whenever hazardous wastes are being transferred or inspected, a two-way communication device (radio or cellular telephone) is available for the operators to use in the case of an emergency. The OC maintains radio communications with CLA personnel during all operations.
Guards within the CLA routinely carry two-way radios. Workers inside storage units work in pairs and must remain in sight of each other at all times. The respiratory protection masks allow talking. Personnel working inside the storage units with chemical agent are watched by someone outside the unit who is in communication with the OC or Security, and is able to report/respond to any problems.

An accident, fire, or explosion will be signaled by an alarm activated by the OC. This siren is audible throughout BGAD. During a chemical accident/incident emergency, the primary means of continuing communication will be installed radio nets. (BGAD phone system will serve as the secondary communication system.) The radio nets are frequency modulated. Radio silence is declared except for chemical accident/incident emergency communications traffic.
F-3b(2). External Communications

The guard areas within the CLA are equipped with telephones, which are part of BGAD telephone system. These telephones can also be used to access locations external to BGAD.

The two-way radio or cellular telephones can be utilized to call BGAD, BGCA, or ACWA personnel in emergency situations or conditions where additional assistance may be required. These personnel can use permanently installed telephones to:

a. Contact other individuals or groups at BGAD to provide support.

b. Contact Emergency Coordinator if an emergency exists.

c. Contact off-site emergency response groups.

F-3b(3). Emergency Equipment

A fire extinguisher is carried in all vehicles in the restricted area and is available to crewmembers entering HWSUs or operations. There is no water supply on site at BGCA’s HWSUs or the sampling area. They are serviced by the facility fire department. The fire department has a tank truck with a 1,200-gallon capacity. A “brush” truck is available with a 250-gallon capacity. Additionally, there are two fire engine pumpers with a total water capacity of 1,060 gallons.

Spill control equipment includes absorbent (socks or pads), brushes, brooms, and dustpans used to retrieve and containerize any spill contents.

During loading at the HWSU within the CLA and unloading and loading at the sampling facility, BGCA’s M12A1 decontamination vehicle is on standby for deployment if an emergency occurs. This vehicle maintains a supply of decontamination chemicals necessary for emergency response.

F-3b(4). Water for Fire Control

There is a fire hydrant near the entrance to the CLA and the flow rate of the hydrant is approximately 730 gallons per minute. The hydrant pumps are diesel backups.

F-3c. Aisle Space Requirement

Aisle space is sufficient in the EE to allow for the unobstructed movement of personnel, fire protection equipment (fire extinguishers), spills control equipment, and decontamination equipment to any area where operations in an emergency may arise. Munitions are stored according to Department of Defense (DOD) ammunition requirements.
F-4 Preventive Procedures, Structures, and Equipment

F-4a. Unloading Operations – Sampling Area within CLA

When the sampling facility is ready to receive the chemical munitions for processing they will be overpacked and transported using a flatbed truck.

The unloading areas of hazardous waste management areas are graveled or paved for ease of maneuvering. Access of extraneous personnel will be restricted when loading/unloading chemical munitions, sampling, or processing.

The GB-filled projectiles to be sampled at the sampling facility will be transported in the same method. The item to be sampled will be overpacked and removed from the HWSU and placed/secured onto a flatbed truck. The truck will transport the overpack projectile to the sampling facility. Once the overpack projectile is unloaded and moved into the EE, it will be monitored. If monitoring (confirmed) indicates an upset condition during transportation, the movement will be reported as a leak outside engineering controls and the contingency procedures identified in Module III, Part G of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application will be followed. Transportation for the sampling operations will be restricted to daylight hours only.

The overpack chemical munitions are transferred by hand or by forklift to a transport vehicle (flatbed). The transport vehicle moves the items to the designated facility. The items are removed from the flatbed by hand or forklift and moved into a designated area within the EE. Once the item/items are sampled, the item/items will be overpacked and transported by flatbed to a designated Chemical HWSU.

F-4b. Run-Off

The HWSUs and EE in the CLA are secure units designed for explosive materials and operations. All containers are kept closed. The storage units are designed to minimize run-off. Periodic maintenance is required to ensure continued protection. None of the facilities are in flood hazard zones. The EE floors system is bermed to prevent run off.

F-4c. Water Supplies

BGAD obtains its drinking water from Lake Vega. The GB sampling facility does not drain into the Lake Vega drainage area. All spills would be contained within the facility and be immediately mitigated to preclude drainage from the facility.

F-4d. Equipment and Power Failure

Hazardous waste storage facilities in the CLA are accessible to workers only during
daylight hours, thus reducing the impact of power failure on visibility and equipment operation.

There is no electrical power supply to the EE facility. The EE facility will operate on independent generators.

The security lighting around the CLA is powered through BGAD utilities system. There is a back-up generator in the event of a power failure. BGAD/BGCA maintains mobile light sets and electrical generators.

F-4e. Personal Protective Equipment (PPE)

Personnel entering the CLA will either wear or carry a protective mask. For administrative type areas, the mask may be readily available to the wearer instead of in a slung position. Each protective mask carrier is supplied with three Antidote Treatment Nerve Agent Autoinjectors nerve agent (GB or VX) antidote injectors for use in emergency exposure. All PPE is provided to the workers and must be in a serviceable condition and properly fitted to the wearer. Each worker required to wear PPE is given instructions on the care and inspection of each piece of equipment issued.

Potential routes of entry of the agents are through vapor inhalation, ocular, skin absorption, and injection. Operational constraints when using PPE are employed in the CLA and based on the nature of the work performed and the type of protective equipment in use (i.e., butyl rubber suits have a limited wear time based upon ambient air temperatures and humidity to prevent injuries from heat exhaustion). The selection of protective equipment worn throughout operations is determined by a combination of air monitoring levels and mandates of standing operating procedures (SOPs) based upon risk level.

Trained emergency personnel responding to a chemical event (accident or incident) or emergency situation will wear the level of protection that is indicated by the conditions that exist.

F-5 Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes

F-5a. Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste

Hazardous waste areas in the CLA are protected from sources of ignition and/or reaction by restrictions of entry to the CLA of individuals in possession of sources of ignition and the following practices:

- Prohibition of open flames.
- Prohibition of smoking.
- Prohibition of work which generates frictional heat or sparks (electrical,
mechanical, or static).

- Prohibition of storage of incompatible wastes in same room or location.
- Proper selection of individual transport and storage containers (design/material).

Wastes are stored in storage units designed to store energetic materials. Storage units are separated by at least 400 feet. Equipment used is spark and explosion resistant. Within the ammo restricted area, personnel are prohibited from smoking and carrying open flame devices such as matches or other flammable items. Gasoline-powered generators are positioned outdoors. Vehicles operating within the ammo restricted area are required to carry fire extinguishers.

Fire control is accomplished through security measures limiting ignition sources in the waste storage area and keeping ground cover minimized. Routine mowing in the CLA keeps the grass controlled and reduces the chance of fire during periods of drought.

F-5b. General Precautions for Handling Ignitable or Reactive Wastes and Mixing of Incompatible Wastes

Only munitions, miscellaneous munitions components, or items containing chemical agent (neat chemical agent [undiluted, full-strength (as manufactured) chemical agent or agent at concentrations above the RDT&E threshold level]) of the same type will be stored/managed in any given HWSU or less than 90 day storage area at any one time.

There is no mixing of chemical agent munitions/containers (GB, VX, or H) in a storage unit or operations. Only one type of agent munition is stored, processed, tested, and/or treated in a given hazardous waste unit at any one time.

F-5c. Management of Ignitable or Reactive Wastes in Containers

Hazardous waste management areas are more than 50 feet from BGAD property line.

F-5d. Management of Incompatible Waste in Containers

The GB sampling operations will only manage waste from the sampling of GB containing projectiles. Therefore no incompatible waste will be managed during this operation.
**Part G: Contingency Plan** [401 KAR 38:090, Section 2(7), 34:040, and 34:190 Section 7 & 40 CFR §264.50-264.56 and 264.196]

As an owner and operator of hazardous waste treatment and storage facilities, BGAD has developed a Contingency Plan to minimize the hazards to human health or the environment from fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

The proposed GB sampling operation and transportation are a chemical agent operation. The operation will be performed within BGAD Chemical Limited Area (CLA). For upset conditions involving GB agent outside engineering controls, the Permittee will follow the contingency procedures identified in Module III, Part G of BGAD Hazardous Waste Facility Permit, RCRA Hazardous Waste Storage Permit Renewal Application.

Roles and responsibility for chemical agent events are addressed in Part G of Module III, and BGAD’s Emergency Management Plan; Annex C; Chemical Accident Incident Response and Assistance (CAIRA) Plan. A copy of BGAD’s CAIRA Plan is located in Module III, Part G.

The BGAD Commander serves as the IRFC, from the onset of a CAIRA event, and the BGCA Commander works under the operational control (OPCON) of BGAD Commander for all CAIRA activities. The BGAD Commander has appointed qualified OSCs. The On-Scene IC will be the most qualified person on the scene for the situation present. For example, in the event of a chemical accident the most senior chemical person will establish on scene incident command. In the event of a security related incident, IC will be performed by senior Directorate of Emergency Services first responder on the scene; and in the event of a fire, IC will be performed by the senior firefighter first responder.

The identification or notification of an actual or suspected chemical accident/incident initiates a CAIRA Plan response phase. Chemical events are reported by the operation supervisor, their designee, or the command post to BGAD/BGCA EOC who notifies BGAD Commander, who immediately assumes the role of IRFC and designates alternates. Immediate actions are taken to save lives, preserve health and safety, secure chemical agent, protect property, prevent further damage to the environment, and promote public confidence. In the event of any emergencies occurring at the GB sampling facility and/or any emergencies involving chemical agent, response actions will be carried out IAW the guidelines in BGAD’s CAIRA Plan.

Hazardous material or hazardous waste (non-agent) spills at the GB sampling facility will be remediated by onsite trained personnel. Operation supervisor or their designee will notify the EOC and BGAD Environmental Office. The operation supervisor or their designee will provide remedial oversight and, if needed, assistance will be provided by trained government or contract personnel staff.
Chemical agent spills within the EE or glovebox will be remediated by onsite trained personnel. The operation supervisor or their designee will notify the EOC and BGAD Environmental Office. The operation supervisor or their designee will provide remedial oversight and, if needed, assistance will be provided by trained government or contract personnel staff.

The operational supervisor or their designee will record spills and remedial action in the operational log and notify BGAD Environmental Office.
Part H: Personnel Training [401 KAR 34:020 Section 7 & 40 CFR §264.16]

H-1 Outline of Training Program

H-1a. General Training

Personnel involved with the handling of chemical munitions/hazardous wastes are required to complete combinations of on-the-job training (OJT) and/or classroom training to ensure they are competent to correctly and safely perform their duties within six months of initial assignment. Personnel who have not received initial training work under the direct supervision of a trained supervisor until completion of OJT and/or classroom training, and are not allowed to work autonomously during the handling of hazardous material.

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

This training program meets the RCRA regulatory requirements by:

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

H-1b. Specific Hazardous Waste Management Training

Employee training is crucial to the accomplishment of the missions and the requirement to provide environmental training is a top priority. The Hazardous Waste Management...
Training Program (HWMTP) is a formal program designed to enhance the environmental competencies of its participants and to promote responsible environmental practices throughout the organization. This training was developed and implemented for personnel involved in hazardous waste operations (GB sampling). Training requirements have been outlined for this training program and contain material for accomplishing these requirements.

The HWMTP has evolved into a comprehensive approach of integrating the requirements to the RCRA, Occupational Safety and Health Act (OSHA), the Installation’s (BGAD’s) Spill Prevention, Control and Countermeasures Plan, the Chemical Accident/Incident Response and Assistance (CAIRA) Plan (CAIRAP), and other meaningful training. The primary purpose of the training is to ensure the employees have the skill to perform their assigned duties in a safe manner in order to protect themselves, other employees, the public, and the environment.

40 CFR 264.16(d)(2) requires a written job description for each employee conducting hazardous waste operations. Position (job) descriptions are maintained and available with the respective organization.

Job titles and duties will be consistent with the current duties and responsibilities for safely treating explosive components IAW applicable OSHA, RCRA, and military requirements. In general, all personnel working at the GB-sampling Facility that manage hazardous waste will be required to:

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

H-2 Scope and Application

Employees receive initial training in Chemical Surety and Hazard Communication. Employees who are involved in managing, storing, and/or handling of hazardous waste including those on temporary appointment, are required to complete hazardous waste management training. The types of duties an employee may engage in when dealing with hazardous waste include, but are not necessarily limited to, engineering, technical work, transportation, containerization, labeling, storage, identification, record keeping, emergency response, and treatment (GB sampling).
H-3 Program Administration

H-3a. Recordkeeping/Reports/Documentation

Personnel training is documented and the appropriate records are maintained with their respective organization. Training records for current employees are kept for three years or until the operation is complete.

Environmental staff or a certified contractor will conduct the RCRA and hazardous waste management training. Training instructors used in the program are subject matter experts in the topic areas of instruction. Environmental Staff periodically attend RCRA and DOT courses to stay current on RCRA and hazardous waste management regulations as they apply to the mission or operations.

H-3b. Job Description

Hazardous waste training for new personnel is initiated when they start work and is normally completed within six months. Personnel are not allowed to work unsupervised until training requirements have been completed. Personnel are not permitted to respond to emergency response situations until training in the appropriate response is completed.

The Hazardous Waste Operations and Emergency Response (HAZWOPER) Training Program is the initial training for those employees that are involved in Hazardous Waste operations and the annual refresher training is 8-hours. New personnel to hazardous waste operations will have successfully completed the training program within six months.

Training Officer or designated site personnel will maintain the following:

1. A list of job titles and positions with the name of each employee filling that position, and
2. A written job description for each position, which lists the required skills and hazardous waste management/handling duties that may be required.

It is the responsibility of the employee’s supervisor or director to notify the training officer when an employee is to be added to or removed from the training program.

Generally, RCRA training requirements for 40 CFR Part 265 facility personnel will include the following:

- Elements of BGAD Chemical Accident/Incident Response and Assistance Plan (BGAD-CAIRAP).
• Communications or alarm systems.
• Operating procedures for using, inspecting, and turn-in of facility emergency equipment is conducted during visual inspections. Facility and monitoring equipment is maintained and replaced by Electronics Mechanic personnel.
• The use and limitations of PPE.
• Response to fires, explosions, groundwater contamination incidents, and shutdown of operations.

Employees that have been identified as performing hazardous waste duties have that expectation included in their job description. This description of hazardous waste duties may involve one or more of the following: management, coordination, engineering or technical work involving hazardous waste management equipment, programs or projects; and/or movement, containerization, storage, identification, recordkeeping, emergency response, treatment, and/or disposition of hazardous waste. Duties require the ability to interpret and implement environmental regulations, knowledge of hazardous waste products, safety regulations, the skill to effect regulatory requirements, and the ability to ensure proper management and/or handling of hazardous wastes.

H-4 Emergency Response

Emergency response will be handled IAW the “Blue Grass Army Depot Installation Spill Contingency Plan (BGAD-ISCP)” and/or the “Blue Grass Army Depot Spill Prevention Control and Countermeasures Plan (BGAD-SPCCP)”. If the accident/incident involves chemical surety material, the “Blue Grass Army Depot Chemical Accident/Incident Response and Assistance Plan (BGAD-CAIRAP)” will be implemented and will take precedence.

H-5 Course Outlines

The training program consists of initial training courses and each having an annual refresher training requirement. The initial courses are as follows:

• Chemical Basic course
• Hazard Communication Course
• RCRA Compliance and Hazardous Waste Management Course
• HAZWOPER.

The training program is a dynamic program that is updated in response to new information and changes in the regulations. Each course outline remains relatively stable but the content is revised as necessary to remain current.
H-6  Chemical Basic Course (Initial and Refresher)

Below is a typical outline of the chemical basic course initial and annual refresher instruction block

H-6a. Chemical Munitions

Descriptions of the different types of chemical munitions and their various configurations including packaging and storage.

H-6b. Chemical Personnel Reliability Program

Identifies the positions that fall under the guidelines of Army Regulation 50-6 and provides a means of assessing the reliability of personnel in these positions.

H-6c. Classification and Effects of Chemical Agents

Describes the types of nerve and blister agents, their physical characteristics, the physiological effects on the body, and the persistency of each agent.

H-6d. Protective Clothing

Reviews protective masks, their proper use and care, and the different types of protective clothing and equipment available for protection from agents.

H-6e. Chemical Agent Alarms/Detectors/Monitors

Describes the alarms for an agent emergency, the types of detection equipment used, and the monitoring methods used to detect and quantify agent concentrations.

H-6f. Self-Aid/First Aid and Decontamination

Discussion of the different decontamination solutions for chemical agents and the proper use of the nerve agent antidote kit. Basic first aid is taught.

H-6g. Chemical Accident/Incident Control

Discussion of the different levels of a chemical event/accident, the response procedures during an incident, and the various teams that respond.

H-7  Hazard Communication Course (Initial and Refresher)

Below is a typical outline of the DOD hazard communication initial and annual refresher instruction block
H-7a. OSHA Hazard Communication Standard

This lesson stresses that employees must be informed about hazardous chemicals in their workplace and be trained to work safely with them.

H-7b. Physical Forms and Exposure Hazards

This lesson discusses the three basic physical forms: solids, liquids, and gases. Types of exposure hazards, which include physical hazards and health hazards, are discussed.

H-7c. Types of Physical and Health Hazards

This lesson discusses physical hazards which are chemicals that cause explosion, fires, violent chemical reactions, or other hazardous situations. Health hazards and chemicals that can cause illness or injury when inhaled, swallowed, or through contact with the skin or eyes are also discussed.

H-7d. Controlling Chemical Hazards

This lesson discusses the basic methods of controlling chemical hazards, which include engineering controls, PPE, and administrative controls.

H-7e. Introduction to Safety Data Sheets (SDSs)/Material Safety Data Sheets (MSDSs) and SDS Physical Hazard Information

This lesson discusses the general layout of an SDS, where to find and understand the information in the physical data section, the fire and explosion hazard section, the reactivity data section, and the precautions for safe handling and use section. The SDS health hazard information lesson teaches how to find and understand the information in the hazardous ingredients section, the health hazards section, and the control measures section.

H-7f. Using Labels and the Hazardous Chemical Inventory

This lesson discusses labeling requirements. Labels must contain all appropriate hazard warnings. The name must be the same on the label, the SDS, and the hazardous chemical inventory list. Hazardous chemical inventory lists must be available and kept up to date.

H-8 Hazardous Waste Management Course (Initial and Refresher)

Below is a typical outline of the hazardous waste management initial and annual
refresher instruction block.

H-8a. RCRA, Federal, State, and Army Regulations

This block is a brief overview of various regulations, which also include hazardous materials regulations. Permit background at BGAD, permit training requirements, and the penalties that may be imposed for noncompliance are also discussed. RCRA regulatory, review, and local controls will be covered.

H-8b. Hazardous Waste Identification

This block discusses when a material becomes a solid waste, a hazardous waste, and gives an overview of chemical waste streams (N001, N002, or N003), and requirements of the hazardous waste label.

H-8c. Hazardous Waste Management

The focus here is on managing hazardous waste to include the permitted unit(s), less than 90-day accumulation, and satellite accumulation areas. A description of the information required for Waste Identification and Certification form is used to capture hazardous waste storage information that is presented during this training. Additional record keeping requirements, spill or release notification requirements, the permitted operations, and storage areas and hazardous waste movement between these areas are also covered.

H-8d. Mission Operating Procedures

This lesson discusses the importance of careful application of procedures called out for each activity undertaken in the CLA. Examples of environmental controls incorporated into the SOP are identified and reviewed.

H-8e. Waste Analysis

The lesson topics include the general requirements of the Waste Analysis Plan, hazardous waste characteristics, laboratory certification, and documentation of waste analysis.

H-9 Hazardous Waste Operations Emergency Response Training Program (HAZWOPER) (40 hour initial)

Below is a typical outline of the HAZWOPER initial instruction block.

H-9a. Legal Rights and Responsibilities
The Legal Rights and Responsibilities is a focus on what is hazardous material/waste and the regulatory background is targeted.

H-9b. Hazard Recognition

Hazard recognition including basic principles of toxicology, hazard classes, material identification, placards and labels, chemical incompatibilities, and National Institute for Occupational Safety and Health pocket guide training.

H-9c. Hazard control

Hazard control including types of hazard control, emergency response plans, the incident command system, establishing site security and control, and the medical surveillance program.

H-9d. Work Practices

Work Practices with a focus on SOPs, material handling and transfer, spill control, equipment and vehicle operation, special control equipment, and confined space entry.

H-9e. Personal Protective Equipment (PPE)

Use and limitations of PPE including respirator and self-contained breathing apparatus (SCBA), characteristics and properties of chemical protective clothing (CPC), precautions when wearing CPC, inspection, maintenance and storage of CPC, and exercises in the use of CPC.

H-9f. On-The-Job Training (OJT)

Air Monitoring and environmental sampling including calibration and sampling protocols, with a review of sampling equipment, record keeping, and document control.

H-9g. Decontamination

Decontamination with a focus on the chemicals used and decontamination steps essential to decontamination of equipment, environmental media, and personnel. A decontamination exercise with available decon equipment and waste containerization resources is undertaken with training provided on waste accumulation, marking, and labeling.

H-10 HAZWOPER (8-hour Refresher)

Below is a typical outline of the HAZWOPER annual refresher instruction block. Any facility position (job) titles that participate in the actual clean-up at the incident/accident...
site will have HAZWOPER.

H-10a. Chemical Basic Course Review

Chemical Munition Review.

H-10b. Hazard Communication

Hazard Communication Course Review.

H-10c. Response to Fires

Response to fires, non-agent spills, and explosions inside and outside the CLA, including response to groundwater contamination incidents.

H-10d. Inspection

Inspection, use, repair, and replacement of emergency/monitoring equipment including the EE systems.

H-10e. Emergency Operation Center Communications

Emergency Operation Center Communications and radio alarm system procedures.

**H-11 On-the-Job Training (OJT)**

Personnel receive OJT based on the individual’s job description. The training includes contingency plan implementation, familiarization with emergency procedures, and the methods and equipment applicable to the employee’s work area. The training includes training on applicable SOPs, Letters of Instruction, and Internal Operating Procedures. At regular intervals employees must review and confirm that they have read and understand the procedures outlined in each SOP applicable to their duties. Additional OJT occurs when a new hazardous material is introduced to the work place or a new procedure is implemented. Credit for completion of chemical exercises or operations can be utilized as training credited for the annual HAZWOPER refresher when proper records are maintained. Chemical or CAIRA/CSEPP exercises conducted annually incorporate the following elements into the drills as per OSHA 1910.120: Structure of authority, training and communication, evacuation routes and procedures, use of PPE, decontamination processes, emergency medical treatment, and emergency alarm procedures.
Part I  Closure Plans, 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: and 40 CFR 264. 111-115, 264.178, and 264.601]

This closure plan specifies performance standards and describes procedures for the closure of the sampling site. The closure performance standards are designed to minimize the need for further maintenance by removing all hazardous waste and hazardous waste constituents from the sampling site. The closure plan is also designed to provide closure in a manner that will control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to surface water, groundwater, or the atmosphere.

There are no permitted container storage areas, tanks, waste piles, surface impoundments, incinerators, landfills, land treatment, or subpart X units, therefore closure requirements for the listed types of hazardous waste management units above are not applicable.

I-1. Closure Plan

The end state of the sampling site is that all ECBC equipment/structures will be decontaminated and returned to ECBC, and the site will be returned to the condition it was prior to sampling operations. During sampling operations any identified hazardous waste spill will be remediated and containerized immediately. Records of all spills will be recorded in an operating record. Soil sampling will only be required if there is a documented release of hazardous waste outside of engineering controls.

I-1a. Closure Performance Standards

This Closure Plan specifies performance standards and describes procedures for the closure of the sampling site. This closure plan is designed to provide for closure in a manner that will:

- Minimize the need for further maintenance.
- Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste and hazardous waste decomposition products to surface water, groundwater, or the atmosphere.

There will be no partial closure of the site. Final closure will accomplish the goals of the closure performance standards, noted above by: (1) completing all sampling operations, and (2) removing or decontaminating all equipment, bases, structures, or other materials containing or contaminated with hazardous waste or hazardous constituents associated with the sampling operation, (3) disposing of all hazardous
waste IAW Part D-12f, and (4) returning all equipment and structures to ECBC.

Post-closure maintenance or monitoring is not anticipated since no hazardous wastes or hazardous constituents are expected to remain above unrestricted use clean closure target levels following final closure.

After final closure, certification, and acceptance of closure by the KDEP, the area will not be classified as a hazardous waste management unit.

I-1b. Closure Activities

All sampling operations will take place within a glovebox, which is designed to prevent vapor or liquid leaks. Anything removed from the glovebox will be decontaminated and monitored prior to being removed, therefore the EE will likely not be contaminated unless there is an agent vapor or liquid leak outside the glovebox. In the case that there is a leak outside of the glovebox, the EE is designed to prevent any vapor or liquid release to the environment. All liquid agent inside the glovebox or EE will be decontaminated and removed during the sampling operation. Any spill of liquid agent outside of engineering controls will be remediated immediately.

If there is no evidence or record of a liquid spill outside of engineering controls in the operating record, closure will be limited to decontamination and removal of the ECBC equipment and structures.

Upon completion of operations, all hazardous waste and hazardous waste residues will be removed. The glovebox, EE, and PDS will be decontaminated using an appropriate decontamination solution. Once monitoring indicates that these structures are less than the WPL, the carbon will be removed from the carbon filter units and the filter housing will be decontaminated and monitored to less than the WPL. The flooring system will be placed into bags and monitored to the WPL. If a layer of the flooring system cannot be cleared to less than the WPL, that layer will be containerized and sent off as the appropriate waste stream. All ECBC equipment and structures (EE, PDS, and glove box, etc...) will then be removed from BGAD and returned to ECBC. Closure wastes will be collected in containers at a hazardous waste storage area (SAA and/or a less than 90 day storage) located at the site. GB agent contaminated wastes carry the Commonwealth of Kentucky hazardous waste number N001. Lab Wastes associated with treated GB wastes carry the Commonwealth of Kentucky hazardous waste number N701. Agent headspace monitoring or generator knowledge will be used for characterization. Containers will be moved to HWSU LO for disposal IAW BGAD Module III, Part D-1 of the Chemical Storage Permit Application.

In the unlikely event that there is a liquid agent spill outside of engineering controls to the environment, a soil sampling plan will be developed to verify clean closure.
A closure report will be prepared and a Certification of Closure submitted to KDEP.

I-1c. Maximum Waste Inventory

The maximum amount of agent at the sampling site at closure will be zero. Secondary wastes generated during sampling operations and closure will be collected in containers at a hazardous waste storage area (SAA and/or a less than 90 day storage) located at the site. Agent contaminated wastes carry the Commonwealth of Kentucky hazardous waste number - N001. Lab Wastes associated with treated GB wastes carry the Commonwealth of Kentucky hazardous waste number N701. Agent headspace monitoring or generator knowledge will be used for characterization. Containers will be transported to HWSU “LO” for disposal IAW BGAD Module III, Part D-1a of the Chemical Storage Permit Application.

I-1d. Schedule for Closure

Closure is scheduled to begin within 15 work days after PEO ACWA approves the sample analysis of the last item. Closure is expected to be completed within 15 work days.

I-1e. Amendment to the Plan

Personnel will notify KDEP and amend the closure plan if unexpected events occur during closure plan implementation which requires a modification to the approved closure plan.

I-1f. Certification of Closure

Within 60 days of completion of final closure procedures, a certification will be signed by a professional engineer and then submitted by the Permittee that the sampling site has been closed IAW the closure plan and all applicable regulations. Since there are no regulated disposal units, only certification of final closure of the facility will be submitted.

I-2. Post Closure Plan

The GB sampling facility is not a disposal site and any residual hazardous contamination will be removed prior to closure, therefore a post-closure plan is not required.

I-3. Financial Requirements

I-3a. Closure Cost Estimate
Not applicable; BGAD is a Federal Facility.

I-3b. Financial Assurance Mechanism for Closure

Not applicable; BGAD is a Federal Facility.

I-3c. Post Closure Cost Estimate

No post closure plan is required; therefore, no post closure estimate is required.

I-3d. Financial Assurance Mechanisms for Post Closure Care

No post closure plan is required; therefore, no financial assurance mechanism for post closure care is required.

I-3e. Liability Requirements

Not applicable; BGAD is a Federal Facility.
Part J: Other Federal Laws

Permittee will follow other applicable Federal Laws as identified in the following Module:

Part K: Waste Minimization [401 KAR 38:090 Section 2(23) and 38:030 Section 1 & 40 CFR §270.30]

Permittee will follow the Waste Minimization as identified in the following Modules:


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

“I certify under penalty of law that this document (Class 2 Hazardous Waste Storage & Treatment Permit Modification Request, addition of GB Sample Extraction Operation, for the Blue Grass Chemical Agent-Destruction Pilot Plant Blue Grass Army Depot, Richmond, Kentucky, Revision 0, dated 20 June 2017) and all attachments were prepared under my direction of supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons 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 known violations.”

Jeffrey L. Brubaker
Site Project Manager
Assembled Chemical Weapons Alternatives
Blue Grass Chemical Agent-Destruction Pilot Plant
Operator

Colonel Norbert A. Fochs
Commander
Blue Grass Army Depot
Owner
Part A of the Kentucky Hazardous Waste Permit Application

Facility's EPA ID No.: KY 8213820105

1. Name of Facility: BLUE GRASS ARMY DEPOT

2. Location of Facility: 431 BATTLEFIELD MEMORIAL HIGHWAY
   City: RICHMOND State: KY Zip Code: 40475-5060

3. County: MADISON See INSTRUCTIONS: Latitude: 37°42'00"N Longitude: 84°12'30"W

   Legal status of Land Owner: ☑ Federal (F) ☐ State (S) ☐ County (C) ☐ Indian (I)
   ☐ Municipal (M) ☐ District (D) ☐ Private (P)
   ☐ Other (O) specify: ________________________________
   Land Owner's Mailing Address: 431 BATTLEFIELD MEMORIAL HIGHWAY
   City: RICHMOND State: KY Zip Code: 40475-5001

5. Existing Facilities, provide the date operation began or construction commenced: 1941
   New Facilities, provide the date operation is expected to begin: H sampling and EDT operations: TBD;
   GB sample extraction operation: May 2018

6. Facility Mailing Address: SAME AS LAND OWNER'S MAILING ADDRESS
   City: __________________ State: __________________ Zip Code: __________________

7. Facility Contact Person: JAMES L. HAWKINS
   Title: BGAD ENVIRONMENTAL CHIEF Phone Number: (859) 779-6268
   Facility Contact Person may be reached at ☐ Mailing Address ☑ Location Address ☐ Other Specify: ________________
   Street Address: __________________________
   City: __________________ State: __________________ Zip Code: __________________
8. Name of Facility Operator: See INSTRUCTIONS: See Sections I, II, III, and IV

Type of Owner: ☒ Federal (F) ☐ State (S) ☐ County (C) ☐ Indian (I)

☐ Municipal (M) ☐ District (D) ☐ Private (P)

☐ Other (O) specify: __________________________

Operator’s Mailing Address: MAILING ADDRESSES REFLECTED ON RESPECTIVE SIGNATURE PAGES
City: __________ State: ________ Zip Code: __________

Facility Operator’s Telephone Number: PHONE NUMBERS REFLECTED ON RESPECTIVE SIGNATURE PAGES

New Operators Assumed Responsibility for Facility on these Dates: BGAD (1941); BGCA (12/14/95); ACWA (07/11/2016); BPBG (6/13/2003)


Legal status of Land Owner: ☒ Federal (F) ☐ State (S) ☐ County (C) ☐ Indian (I)

☐ Municipal (M) ☐ District (D) ☐ Private (P)

☐ Other (O) specify: __________________________

Owner’s Mailing Address: SAME AS MAILING ADDRESS ABOVE
City: __________ State: ________ Zip Code: __________

Facility Owner’s Telephone Number: (859) 779-6246

New Operator Assumed Responsibility for Facility on this Date: 1941 (Month, Day, Year)

10. SIC Codes: (1) 9711 (2) __________ (3) __________ (4) __________

Briefly describe the type of business conducted at this site: NATIONAL SECURITY (U.S. ARMY)
I. OPERATOR SIGNATURE: BGAD Commander
Conventional Munition Related Items

I. The Blue Grass Army Depot (BGAD) Commander is responsible for operation of the BGAD Facility, including the units listed on page 4.

NORBERT A. FOCHS
COLONEL, U.S. ARMY
COMMANDING
431 BATTLEFIELD MEMORIAL HIGHWAY
RICHMOND, KY 40475
859-779-6246

Operator Certification: For operations listed on page 4 and waste streams 1-6, 22, 24, 25, and 26 listed on pages 16-17, I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NORBERT A. FOCHS
COL, LG
Commanding
BGAD
Permit Operator

[Signature]

19 Apr 17
DATE SIGNED

BGAD Tracking Number 20170620
### 11. PROCESS DESCRIPTION. See Instructions

<table>
<thead>
<tr>
<th>Commercial Indicator</th>
<th>Unique Unit or Group Name</th>
<th>Legal Status Code</th>
<th>Process Codes</th>
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<th>Number Of Individual Units In This Process</th>
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<th>Description Of Process</th>
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<tbody>
<tr>
<td>3</td>
<td>Storage Container Igloo B402 PI S01 16000.00 G</td>
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<td>Storage Igloos (B608, B612, G108, G109) IT S01 0.00 N/A</td>
<td>4</td>
<td>CC</td>
<td>Igloos that previously contained hazardous waste. Clean Closed 4-20-1999</td>
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<tr>
<td>3</td>
<td>Open Detonation / Buried Detonation IS X01 4.5 N</td>
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<td>Open detonation/buried detonation of waste military munitions and energetic waste.</td>
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<tr>
<td>3</td>
<td>Open Burning (1) &amp; (2) IS X01 7.5 N</td>
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<td>OP</td>
<td>Open burning of waste military munitions and energetic waste.</td>
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<tr>
<td>3</td>
<td>Molten Salt Destruction Unit, Building 575 IT X99 0.00 N/A</td>
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<td>CC</td>
<td>Building that previously contained hazardous waste. Clean Closed 3-30-2011</td>
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<tr>
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<td>Controlled Destruction Chamber IS X99 5.1 N</td>
<td>1</td>
<td>OP</td>
<td>Destruction of waste military munitions and energetic waste in an enclosed structure. It is not associated with chemical demilitarization.</td>
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II. OPERATOR SIGNATURE: BGCA Commander
Chemical Storage Modification

II. The Blue Grass Chemical Activity (BGCA) Commander is responsible for operation of the
Hazardous Waste Storage Units in the Chemical Limited Area as listed on pages 6-10.

SCOTT D. GOULD
LTC, U.S. ARMY
431 BATTLEFIELD MEMORIAL HIGHWAY
RICHMOND, KY 40475
859-779-6891

Operator Certification: For operations listed on pages 6-10 and waste streams 7-21 and 23
listed on pages 16-17, I certify under penalty of law that I have personally examined and am
familiar with the information submitted in this and all attached documents, and that based on
my inquiry of those individuals immediately responsible for obtaining the information, I
believe that the submitted information is true, accurate, and complete. I am aware that there
are significant penalties for submitting false information, including the possibility of fine and
imprisonment.

SCOTT D. GOULD
LTC, CM
Commanding
BGCA
Permit Operator

SIGNATURE
DATE SIGNED
15 June 2017
### 11. PROCESS DESCRIPTION. See Instructions

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<th>Description Of Process</th>
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<tr>
<td>4</td>
<td>Container Storage I</td>
<td>PI</td>
<td>S01, T04</td>
<td>3831.00</td>
<td>G</td>
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</tr>
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<td>Storage of Chemical Munitions Items, VX, (estimate 2 - 3%); treatment as defined by KRS 224.50-130.</td>
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<tr>
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*See Instructions*

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<td>1</td>
<td>OP</td>
<td>Storage of Chemical Munitions Items, H, (estimate 5 - 6%); treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>4</td>
<td>Container Storage NM</td>
<td>PI</td>
<td>S01, T04</td>
<td>3831.00 G</td>
<td>G</td>
<td>1</td>
<td>OP</td>
<td>Storage of Chemical Munitions Items and DOT Bottle, H, (estimate 5 - 8%); treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>4</td>
<td>Container Storage MN (H)</td>
<td>PI</td>
<td>S01, T04</td>
<td>3831.00 G</td>
<td>G</td>
<td>1</td>
<td>OP</td>
<td>Storage of Chemical Munitions Items, H, (estimate 1 - 2%); treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>4</td>
<td>Container Storage LO</td>
<td>PI</td>
<td>S01, T04</td>
<td>3831.00 G</td>
<td>G</td>
<td>1</td>
<td>OP</td>
<td>Storage of waste from the management of chemical munitions, chemical container, items in support of storage and mission. (Maintenance, Decontamination, PPE, etc.), (estimate 1 - 2%); treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>4</td>
<td>Container Storage KP</td>
<td>PI</td>
<td>S01, T04</td>
<td>3831.00 G</td>
<td>G</td>
<td>1</td>
<td>OP</td>
<td>Storage of waste from the management of chemical munitions, chemical container, and items in support of storage and mission. (Maintenance, Decontamination, PPE, etc.), (estimate 1 - 2%); treatment as defined by KRS 224.50-130.</td>
</tr>
</tbody>
</table>
III. OPERATOR SIGNATURE: PEO ACWA Site Project Manager
Mustard Agent (H) Sampling Operation, GB Sample Extraction Operation Modifications

III. Program Executive Office, Assembled Chemical Weapons Alternatives (PEO ACWA) Site Project Manager is responsible for operation in the Chemical Limited Area (CLA) as listed on page 12 & 13.

JEFFREY L. BRUBAKER
PEO ACWA
SITE PROJECT MANAGER
830 EASTERN BYPASS SUITE 106
RICHMOND, KY 40475
859-779-7450

Operator Certification: For operations listed on pages 12 and 13, and waste streams M1-M4 listed on pages 17-18, and waste streams G1-G4 listed on page 20, I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

JEFFREY L. BRUBAKER
PEO ACWA
Site Project Manager
Permit Operator

[Signature]

BGAD Tracking Number 20170620
### 11. PROCESS DESCRIPTION. See Instructions

<table>
<thead>
<tr>
<th>Commercial Indicator</th>
<th>Unique Unit or Group Name</th>
<th>Legal Status Code</th>
<th>Process Codes</th>
<th>Process Design Capacity Of All Units Listed Under This Name</th>
<th>Unit of Measure</th>
<th>Number Of Individual Units In This Process</th>
<th>Operating Status Code</th>
<th>Description Of Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>H Sampling Facility</td>
<td>PI</td>
<td>T04</td>
<td>4.4</td>
<td>U</td>
<td>1</td>
<td>BC</td>
<td>Management of Mustard agent items in support of Treaty and de-mil requirements/mission. Operation to include but not limited to movement, drilling, sampling, plugging, and over-packing. Operation will be performed in a General Purpose Operations Shelter (GPOS), within a glove box, under engineering controls. Note: U=gallons per day based on agent fill. Estimated Process Design: 4 rounds/day x 11.7 lbs. per round x 10.59 lbs/gallon = 4.4 gallons/day DOT bottles are 14.75 lbs @ 10.59 lbs/gallon = 1.39 gallons/day [x 2 bottles=2.78gallon/day]. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>4</td>
<td>Movement H Sampling</td>
<td>PI</td>
<td>T04</td>
<td>318.4</td>
<td>U</td>
<td>1</td>
<td>CN</td>
<td>Movement of mustard fill agent items from EDT service Magazine or Chemical HWSU to the Mustard (H) Sampling Facility and movement from H Sampling Facility to EDT or EDT Service Magazine. To include movement at the H Sampling Facility. Note: U=gallons per day based on agent fill. Estimated Process Design (base on EONC capability): 72 H-rounds/trip x 11.7 lbs. per round x 10.59 lbs/gallon = 79.6 gallons/trip/EONC; for a maximum of 4 EONC/day X 79.6 = 318.4 gallon/day. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>4</td>
<td>GB Sampling Facility</td>
<td>RQ</td>
<td>T04</td>
<td>12</td>
<td>V</td>
<td>1</td>
<td>BC</td>
<td>Management of GB items in support of de-mil requirements/mission. Operation to include but not limited to movement, drilling, sampling, plugging, and over-packing. Operation will be performed in a GPOS, within a glove box, under engineering controls. Estimated Process rate: 2-8 inch GB filled projectile/Day [14.5 lb (GB) / 2.425 lb/L ≈ 12 liters/Day]. Treatment as defined by KRS 224.50-130.</td>
</tr>
</tbody>
</table>
11. PROCESS DESCRIPTION. See Instructions

<table>
<thead>
<tr>
<th>Commercial Indicator</th>
<th>Unique Unit or Group Name</th>
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<th>Process Codes</th>
<th>Process Design Capacity Of All Units Listed Under This Name</th>
<th>Unit of Measure</th>
<th>Number Of Individual Units In This Process</th>
<th>Operating Status Code</th>
<th>Description Of Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Movement GB projectile and Sampling</td>
<td>RQ</td>
<td>T04</td>
<td>12 V</td>
<td></td>
<td>1</td>
<td>BC</td>
<td>Movement of GB fill agent items from HWSU to the GB Sampling Facility and movement from Sampling Facility to HWSU. To include movement at the Sampling Facility. Estimated Process Rate/Day: 2-8 inch GB filled projectile or combination of the 2-projectiles and samples/Day. Treatment as defined by KRS 224.50-130.</td>
</tr>
</tbody>
</table>
IV. OPERATOR SIGNATURE: BPBG Project Manager
EDT Facility Modification

IV. Bechtel Parsons Blue Grass (BPBG) Project Manager is responsible for operation in the Explosive Destruction Technologies (EDT) Portion of the Chemical Limited Area (CLA) also known as the “EDT Facility” as listed on pages 15.

RONALD HINK
BPBG PROJECT MANAGER
830 EASTERN BYPASS
RICHMOND, KY 40475
859-624-6240

Operator Certification: For operations listed on page 15 and waste streams E1-E9 listed on pages 18-19, I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

RON HINK
Bechtel Parsons Blue Grass
Project Manager
Permit Operator

[Signature]

DATE SIGNED 6-13-17
### 11. PROCESS DESCRIPTION. See Instructions

<table>
<thead>
<tr>
<th>Commercial Indicator</th>
<th>Unique Unit or Group Name</th>
<th>Legal Status Code</th>
<th>Process Codes</th>
<th>Process Design Capacity Of All Units Listed Under This Name</th>
<th>Unit of Measure</th>
<th>Number Of Individual Units In This Process</th>
<th>Operating Status Code</th>
<th>Description Of Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Static Detonation Chamber (SDC) System</td>
<td>P1</td>
<td>X99</td>
<td>70.2</td>
<td>J</td>
<td>1</td>
<td>UC</td>
<td>Subpart X Unit will treat Mustard Agent - H Mmunitions/DOT bottles (only two in stockpile) containing mustard agent and provide agent destruction. Maximum processing rate is 6 containers per hour. Scrap metal from chamber is recycled.</td>
</tr>
<tr>
<td>4</td>
<td>Service Magazine</td>
<td>P1</td>
<td>S01, T04</td>
<td>1,328</td>
<td>G</td>
<td>1</td>
<td>UC</td>
<td>Provide RCRA storage of hazardous waste and staging area/ buffer for treatment operations. Maximum storage capacity is 1,206 projectiles that contain approximately 1,326.6 gallons of mustard agent and two DOT bottles that contain a total of approximately 1.4 gallons of mustard agent. As part of destruction process, these containers are transported by forklift from the ESM to Explosive Destruction Technology (EDT) Enclosure Building (EEB) for destruction. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>4</td>
<td>Movement of Chemical Agent Filled Munitions and DOT Bottles</td>
<td>P1</td>
<td>T04</td>
<td>576</td>
<td>U</td>
<td>1</td>
<td>CN</td>
<td>Transportation of mustard-filled items [in Enhanced Onsite Containers (EONCs)] from chemical agent Hazardous Waste Storage Units (HWSUs) to EDT Facility for storage and destruction, from EDT Facility to 11-sampling facility (treaty verification) with return transport to EDT Facility for destruction, and movement between the ESM and the EEB. Each EONC can contain a maximum of 72 H-filled projectiles. The EONCs and mustard filled items are transported only during daylight hours. Treatment as defined by KRS 224.50-130.</td>
</tr>
</tbody>
</table>
### 12. WASTE STREAM DESCRIPTION. See Instructions.

<table>
<thead>
<tr>
<th>WASTE STREAM NUMBER</th>
<th>ESTIMATE ANNUAL WASTE AMOUNT</th>
<th>UNIT OF MEASURE</th>
<th>EPA WASTE NUMBERS</th>
<th>PROCESS CODES ASSOCIATED WITH THIS WASTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30.0</td>
<td>TONS</td>
<td>K045 Conventional Storage Section [Conventional Storage Section: (N)]</td>
<td>S01 Explosive contaminated granular activated charcoal.</td>
</tr>
<tr>
<td>2</td>
<td>2000.0</td>
<td>TONS</td>
<td>D003, K044 (N)</td>
<td>S01 Explosive sludge contaminated filters.</td>
</tr>
<tr>
<td>3</td>
<td>5.0</td>
<td>TONS</td>
<td>D004, D005, D006, D007, D008, and/or D009 (N)</td>
<td>S01 Baghouse dust from Controlled Destruction Chamber.</td>
</tr>
<tr>
<td>4</td>
<td>150.0</td>
<td>TONS</td>
<td>D006, D007, and/or D008 (N)</td>
<td>S01 Sandblast media from de-rusting operations.</td>
</tr>
<tr>
<td>5</td>
<td>2700.0</td>
<td>TONS</td>
<td>D003, D006, D007, and/or D008 (N)</td>
<td>S01 Explosive ammunition and related components.</td>
</tr>
<tr>
<td>6</td>
<td>5.0</td>
<td>TONS</td>
<td>K047 (N)</td>
<td>S01 Pink/red water from manufacturing and process of explosive.</td>
</tr>
<tr>
<td>7</td>
<td>0.5</td>
<td>TONS</td>
<td>D007, N001, N002, and/or N003 [Chemical Storage Section: (C)]</td>
<td>S01, and/or T04 Agent contaminated carbon filters with Whetlerite. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>8</td>
<td>2.0</td>
<td>TONS</td>
<td>D007 (C)</td>
<td>S01 Expired carbon filters with Whetlerite.</td>
</tr>
<tr>
<td>9</td>
<td>1.0</td>
<td>TONS</td>
<td>D001, D002, D003, D004, D011, D018, D022, D035, D036, D037, D039, D040, D043, U002, U044, U103, U127, U154, U165, U131, U210, F001, F002, F003, F004, N001, N002, N003, N701, N702, and/or N703 (C)</td>
<td>S01, and/or T04 Laboratory wastes. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>10</td>
<td>425.0</td>
<td>TONS</td>
<td>D001, D003, D004, D009, D011, D012, D030, N001, and/or N002 (C)</td>
<td>S01, and/or T04 Explosive components. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>11</td>
<td>90.0</td>
<td>TONS</td>
<td>D001, D003, D004, D008, D009, N001, N002 and/or N003 (C)</td>
<td>S01, and/or T04 Explosive components. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>12</td>
<td>0.5</td>
<td>TONS</td>
<td>N001, N002, and/or N003 (C)</td>
<td>S01, and/or T04 Agent contaminated debris. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>13</td>
<td>2.5</td>
<td>TONS</td>
<td>D002, N001, N002 and/or N003 (C)</td>
<td>S01, and/or T04 Spent decontamination waste. Treatment as defined by KRS 224.50-130.</td>
</tr>
</tbody>
</table>
## 12. WASTE STREAM DESCRIPTION. See Instructions.

<table>
<thead>
<tr>
<th>WASTE STREAM NUMBER</th>
<th>ESTIMATE ANNUAL WASTE AMOUNT</th>
<th>UNIT OF MEASURE</th>
<th>EPA WASTE NUMBERS</th>
<th>PROCESS CODES ASSOCIATED WITH THIS WASTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>0.5 TONS</td>
<td>D002 (C)</td>
<td>S01</td>
<td>Expired decontamination waste.</td>
</tr>
<tr>
<td>15</td>
<td>2.0 TONS</td>
<td>N001, N002, and/or N003 (C)</td>
<td>S01, and/or T04</td>
<td>Agent exposed PPE. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>16</td>
<td>1.0 TONS</td>
<td>D003, N001, N002, and/or N003 (C)</td>
<td>S01, and/or T04</td>
<td>Agent exposed reactive materials. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>17</td>
<td>425.0 TONS</td>
<td>D003, D005, D008, N001, and/or N002 (C)</td>
<td>S01, and/or T04</td>
<td>Chemical agent munitions (non-explosive components). Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>18</td>
<td>90.0 TONS</td>
<td>D003, D005, D008, N003 (C)</td>
<td>S01, and/or T04</td>
<td>H-Mustard projectiles. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>19</td>
<td>2.5 TONS</td>
<td>D003, and/or N001 (C)</td>
<td>S01, and/or T04</td>
<td>GB leaker reactive waste. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>20</td>
<td>0.0 TONS</td>
<td>N001 (C)</td>
<td>S01, and/or T04</td>
<td>GB containers. Treatment as defined by KRS 224.50-130</td>
</tr>
<tr>
<td>21</td>
<td>0.5 TONS</td>
<td>N002, and/or N003 (C)</td>
<td>S01, and/or T04</td>
<td>VX and H-mustard DOT bottles. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>22</td>
<td>0.5 TONS</td>
<td>D001, D006, D007, D018, D035, D039, F001, F002, F003, F004, and/or F005 (N)</td>
<td>S01</td>
<td>Paint waste and related material.</td>
</tr>
<tr>
<td>23</td>
<td>35.0 TONS</td>
<td>D002, D004-D011 and/or N001 (C)</td>
<td>S01, and/or T04</td>
<td>GB decontamination waste. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>24</td>
<td>216.0 TONS</td>
<td>D003, D001, D004, D005, D006, D007, D008, D010, D011, and/or D030</td>
<td>X01, open detonation/buried detonation. Waste Military Munitions and energetic waste. The weight in short tons for waste streams are expressed as Net Explosive Weight (NEW).</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>340 TONS</td>
<td>D003, D001, D004, D005, D006, D007, D008, D010, D011, and/or D030</td>
<td>X99, controlled destruction chamber. Waste Military Munitions and energetic waste. Annual waste amount for Controlled Destruction Chamber estimated for 35,000 rocket motors (RM)/year at 20 lb NEW/RM. Estimate assumes the CDC is brought on-line from an operation perspective. The weight in short tons for waste streams are expressed as NEW.</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>800.0 TONS</td>
<td>D003, D008, and/or D030</td>
<td>X01, open burning. Waste Military Munitions and energetic waste. The weight in short tons for waste streams are expressed as NEW.</td>
<td></td>
</tr>
<tr>
<td>M1</td>
<td>0.25 TONS</td>
<td>N003 [H Sampling Operations Section: (M)]</td>
<td>S01, and/or T04</td>
<td>Agent contaminated debris/PPE. Treatment as defined by KRS 224.50-130.</td>
</tr>
</tbody>
</table>
### 12. WASTE STREAM DESCRIPTION. See Instructions.

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<tr>
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<th>PROCESS CODES ASSOCIATED WITH THIS WASTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td>0.25 TONS</td>
<td></td>
<td>D001, D002, D003, D004, D011, D018, D022, D035, D036, D037, D039, D040, D043, U002, U044, U103, U127, U154, U1331, U210, F001, F002, F003, F004, and/or N703 (M)</td>
<td>S01, and/or T04 Laboratory wastes. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>M3</td>
<td>0.25 TONS</td>
<td></td>
<td>D002 and/or N003 (M)</td>
<td>S01, and/or T04 Spent decontamination waste. Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>M4</td>
<td>0.25 TONS</td>
<td></td>
<td>D007 and/or N003 (M)</td>
<td>S01, and/or T04 Agent contaminated carbon filters Treatment as defined by KRS 224.50-130.</td>
</tr>
<tr>
<td>E1</td>
<td>729* TONS</td>
<td></td>
<td>D004, D005, D006, D007, D008, D009, D010, D011, and/or N203 [EDT Section: (E)]</td>
<td>X99 SDC (Static Detonation Chamber) Chamber Residue -- includes metallic munitions fragments and ash. Scrap metal will be recycled after waste and residues (ash, particulates, dust, and fine metals) and debris (small metallic pieces) are removed via shaking and vibration. If hazardous waste, residue and debris removed from the scrap metal will be included with waste stream E6. *Scrap metal to be recycled</td>
</tr>
<tr>
<td>E2</td>
<td>1 TONS</td>
<td></td>
<td>D001, D002, D004, D005, D006, D008, D009, D011, D022, D026, D027, D028, D029, D030, D037, D039, D040, F001-F005, and/or N003 (E)</td>
<td>S01 Agent-contaminated Derived-From KY Wastes -- PPE, trash, rags, munitions dunnage, operations &amp; maintenance wastes that have contacted agent or represent a hazard from other known conditions.</td>
</tr>
<tr>
<td>E3</td>
<td>1 TONS</td>
<td></td>
<td>D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D026, D027, D028, D029, D030, D037, D039, D040, F001-F005, and/or N703 (E)</td>
<td>S01 Laboratory generated analytical wastes, samples, and solvents.</td>
</tr>
<tr>
<td>E3</td>
<td>1 TONS</td>
<td></td>
<td>D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D026, D027, D028, D029, D030, D037, D039, D040, F001-F005, and/or N703 (E)</td>
<td>S01 Laboratory generated analytical wastes, samples, and solvents.</td>
</tr>
<tr>
<td>WASTE STREAM NUMBER</td>
<td>ESTIMATE ANNUAL WASTE AMOUNT</td>
<td>UNIT OF MEASURE</td>
<td>EPA WASTE NUMBERS</td>
<td>PROCESS CODES ASSOCIATED WITH THIS WASTE</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>E4</td>
<td>1.5 TONS</td>
<td></td>
<td>D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D028, D030, D039, D040, F001-F005, and/or N003 (E)</td>
<td>S01 Miscellaneous Wastes which includes, but may not be limited to, oils, hydraulic fluids, paints, solvents, and other wastes that exhibit characteristics of ignitability, corrosivity, reactivity, or toxicity due to the chemical composition of the materials. May be agent-derived if there was agent contact.</td>
</tr>
<tr>
<td>E5</td>
<td>&lt;1 TONS</td>
<td></td>
<td>D002, D004, D005, D006, D007, D008, D009, D010, D011, and/or N003 (E)</td>
<td>S01 Liquid from OTS (Off-Gas Treatment System) Scrubbers when removed from the system; considered agent-derived.</td>
</tr>
<tr>
<td>E6</td>
<td>3 TONS</td>
<td></td>
<td>D004, D005, D006, D007, D008, D009, D010, D011, and/or N003 (E)</td>
<td>S01 Solids from the OTS Buffer Tank; considered agent-derived waste.</td>
</tr>
<tr>
<td>E7</td>
<td>4 TONS</td>
<td></td>
<td>D004, D005, D006, D007, D008, D009, D010, D011, and/or N003 (E)</td>
<td>S01 Dry Salts and Particulates from the OTS Spray Dryer; considered agent derived.</td>
</tr>
<tr>
<td>E8</td>
<td>10 TONS</td>
<td></td>
<td>D001, D004, D005, D006, D007, D008, D009, D010, D011, N003, and/or N203 (E)</td>
<td>S01 Particulates and vapors absorbed to the Carbon Beds, HEPA Filters, and Pre-filters from the IONEX 4000 and 16,000 filter banks; agent derived (N003). The filter located between the bleed water tank and the process water tank is agent-derived (N203).</td>
</tr>
<tr>
<td>E9</td>
<td>280 TONS</td>
<td></td>
<td>D004, D005, D006, D007, D008, D009, D010, D011, and/or N203 (E)</td>
<td>S01 Dust and Metal Oxides from the OTS Bag House Filters; agent-derived.</td>
</tr>
</tbody>
</table>
## 12. WASTE STREAM DESCRIPTION. See Instructions.

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<thead>
<tr>
<th>WASTE STREAM NUMBER</th>
<th>ESTIMATE ANNUAL WASTE AMOUNT</th>
<th>UNIT OF MEASURE</th>
<th>EPA WASTE NUMBERS</th>
<th>PROCESS CODES ASSOCIATED WITH THIS WASTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
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<td>TONS</td>
<td>N001</td>
<td>S01, and/or T04</td>
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<td>[GB Sampling</td>
<td>Agent contaminated debris/PPE.</td>
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<td>Treatment as defined by KRS 224.50-130.</td>
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<td>S01, and/or T04</td>
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<td>Laboratory wastes.</td>
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<td>D022, D035, D036,</td>
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</tr>
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<td>and/or N701 (G)</td>
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<td>TONS</td>
<td>D002 and/or N001</td>
<td>S01, and/or T04</td>
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<td>Spent decontamination waste.</td>
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<td>TONS</td>
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<td>S01, and/or T04</td>
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<td>Agent contaminated carbon filters.</td>
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<td>Treatment as defined by KRS 224.50-130.</td>
</tr>
</tbody>
</table>
13. Existing Environmental Permits:

- Inter-State Regional Program [A]:
- Single Well (FURS) [B]:
- County Program [C]:
- DOE Program [D]:
- Other EPA Program [E]:
  
  EPA 404 (dredge or fill program) [F]:
- USGS Program [G]:
- Area Wells (FURS) [H]:
- NOTIS [I]:
- Municipal (city, town, etc.) Program [M]:
- NPDES/KPDES (discharges to surface water) [N]: KY0020737
- PSD (Prevention of Significant Deterioration - Clean Air Act) [P]: Title V Air Permits [V-12-037, Rev. 2, & V-16-019]
- CDS [Q]:
- RCRA (hazardous wastes) [R]: KY8-213-820-105; EPA HSWA Permit for EDT
- State Program [S]:
- DOT Program [T]:
- UIC (underground injection of fluids) [U]:
- Intra-State Regional Program [W]:
- Other Federal Program [X]:
  
  specify:
- CICIS (OTS Chemicals in Commerce Information System) [Y]:
- Other Non Federal Programs [Z]: Water Withdrawal Permit #1013

14 FACILITY STATUS:

- Waste is NOT received from off-site
- Accepts waste from any off-site source(s) [A]
- Accepts waste from only a restricted group of off-site source(s) [R]:
  
  Specify: Military Sources / Government Sources

15 PHOTOGRAPHS, DRAWING AND MAP - See INSTRUCTIONS

All existing facilities must include photographs (aerial or ground level) that clearly delineate all existing structures; existing storage, treatment or disposal areas; and sites of future treatment, storage or disposal areas. All existing facilities must include a drawing showing the general layout of the facility and a topographic map. The photographs, drawing and map must be attached to this form.

16 If the facility owner is also the facility operator, please skip this section and complete item 17 below.

17 Operator Certification - I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

18 Land Owner Certification - I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.
ADDENDUM NOTES / OPERATOR CERTIFICATION

I. Addition of GB Sample Extraction Operation