

24915-00-GPE-GGPT-00361

Resource Conservation and Recovery Act (RCRA)

# **Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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

**EPA ID KY8-213-820-105**



*Submitted To:*

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Division of Waste Management  
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**Submitted 16 Nov 2020, Revision 2**

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket  
Management and Miscellaneous Permit Updates**

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**Table of Contents**

|    |            |   |    |
|----|------------|---|----|
| 1  |            |   |    |
| 2  | 1.0        | Overview .....  | 3  |
| 3  | 2.0        | Permit Modification Requests .....  | 4  |
| 4  | 2.1        | Descriptions and Justifications for Permit Modifications .....  | 4  |
| 5  | 2.1.1      | Changes and updates to A.III.A.(1) Permitted Waste Streams, Descriptions and<br>Codes .....             | 4  |
| 6  |            |   |    |
| 7  | 2.1.2      | Change and update to A.III.A.(10) Spent Decontamination Solution .....                                  | 5  |
| 8  | 2.1.3      | Elimination of Equipment Associated with the Destruction of Energetics at the<br>BGCAPP Main Plant..... | 5  |
| 9  |            |   |    |
| 10 | 2.1.4      | Rocket Warhead Containerization System (RWCS) .....   | 6  |
| 11 | 2.1.5      | Changes to Existing Permitted Storage Unit Capacities .....   | 7  |
| 12 | 2.1.6      | Addition of New Permitted Storage Units.....  | 8  |
| 13 | 2.1.7      | OTM Condensate Water Recovery by RO System.....   | 10 |
| 14 | 2.1.8      | Update of RCRA Critical Operating Parameters .....  | 10 |
| 15 | 2.2        | Update of Part A .....  | 10 |
| 16 | 2.3        | Requested Changes and Related Supporting Documents.....   | 12 |
| 17 | 2.4        | Class of Permit Modifications.....  | 12 |
| 18 | 3.0        | Other Applicable Information .....  | 12 |
| 19 | Appendix A | : Permit Related Information or Documents Affected by PMR.....  | 13 |
| 20 |            |   |    |

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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**1.0 OVERVIEW**

This document contains a Class 3 Permit Modification Request (PMR) for the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) Main Plant hazardous waste storage and treatment permit. The BGCAPP Main Plant facility is located at 431 Battlefield Memorial Highway, Richmond, Kentucky. The Bechtel Parsons Blue Grass (BPBG) Joint Venture (JV) is the operator of the BGCAPP and is a Co-Permittee with Blue Grass Army Depot (BGAD) under the Resource Conservation and Recovery Act (RCRA) Part B Permit (EPA ID #KY8-213-820-105, AI #2805) issued by the Kentucky Department for Environmental Protection (KDEP), Division of Waste Management (DWM).

This PMR is being submitted in accordance with 401 Kentucky Administrative Regulation (KAR) 39:060 incorporating Title 40 Code of Federal Regulations (CFR) §270.42(d). The modifications to the Permit that are being requested are:

- Elimination of equipment in the BGCAPP Main Plant Munitions Demilitarization Building (MDB) associated with the destruction of energetics.
- Elimination of equipment in the Supercritical Water Oxidation (SCWO) Process Building (SPB) associated with destruction of energetics hydrolysate and use of energetics hydrolysate surrogate in the SCWO process.
- Addition of a Rocket Warhead Containerization System (RWCS).
- Tray/Container Transfer Room (Room 07-124), increase in RCRA permitted storage from 550 gallons to 1300 gallons.
- Explosive Containment Rooms 1 & 2 (Rooms 07-104 & 07-105), increase in RCRA permitted storage capacity from 55 gallons to 70 gallons per room.
- Energetics Batch Hydrolyzer Room (Room 07-111), addition of 450 gallons of RCRA permitted storage.
- Toxic Maintenance Area Equipment Room (Room 07-133), addition of 1,100 gallons of RCRA permitted storage.
- Unpack Area (UPA) Equipment Room (Room 07-133), addition of 1,100 gallons of RCRA permitted storage.
- Munitions Washout System (MWS) Reject Table – MJ-MWS-0103, change in RCRA permitted storage from 5 gallons MWS Reject Table – MJ-MWS-0103 to Munitions Washout System (Room 07-135) RCRA permitted storage 2755 gallons.
- Off-Gas Treatment System – Energetics (Room 07-140), addition of 2,750 gallons (gal) of RCRA permitted storage.
- Off-Gas Treatment System for the Metal Parts Treater (Room 07-141), addition of 2,750 gallons (gal) of RCRA permitted storage.
- Allow OTM Condensate routed to the SCWO Effluent tanks to be processed through the reverse osmosis (RO) system for water recovery for use in SCWO quench.
- Update of RCRA Critical Operating Parameters.
- Update of Part A waste codes to be consistent with changes in this PMR, Kentucky listed waste codes in 401 KAR 39:060, and the previously submitted Research, Development, and Demonstration (RD&D) permit application, subsequent RD&D PMR submittals, the Container Storage Facility (CSF) permit modification request, and the Rocket Motor Storage (RMS) permit modification request.

This modification does not change the ability of the Permittees to provide protection to human health and the environment.

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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## 2.0 PERMIT MODIFICATION REQUESTS

The requested modifications to the Permit and its related supporting documents are provided in this PMR. Requirements of 39:060 Section 5, Section 3, and 40 CFR §270.42 for a Class 3 permit modification request are specifically addressed in the subsection below.

### 2.1 Descriptions and Justifications for Permit Modifications

Per 401 KAR 39:060 Section 5 and 40 CFR §270.42(b)(1)(iii), the applicant is required to provide an explanation of why the modifications are needed. Section 2.1.1 of this PMR discuss the rationale for these modifications.

#### 2.1.1 Changes and updates to A.III.A.(1) Permitted Waste Streams, Descriptions and Codes

Corrections and updates to the table are included and discussed below. These updates and are necessary to align with facility processes and operating condition.

Waste Stream:

- A.1 – MPT Residue & Ash. The current table lists process code X03 thermal treatment. This waste stream is not intended to be treated thermally, as it is a waste product from a thermal treatment process. This process code is changed to S01 container storage, which is the appropriate process code for this waste stream. There is no change in treatment – this is an administrative update to correct the table.
- A.2 – Aluminum Precipitate/Containerized Rocket Warheads. Represented aluminum precipitate waste which will no longer be generated due to process changes identified in this PMR. A new waste stream being generated as a result of changes in this PMR is inserted in the place of the aluminum precipitate, “Containerized Rocket Warheads”. The associated waste codes and waste description associated with Containerized Rocket Warheads are inserted in the table. This change updates the condition to be consistent with the changes included in this PMR.
- A.8 – Maintenance and Miscellaneous Wastes; Oils, Paints, Spent Solvents, Hydraulic Fluids. The addition of process codes X03 thermal unit is included to align with the thermal treatment in the MPTs of solid agent contaminated waste produced from maintenance activities. There is no change in treatment – this is an administrative update to correct the table.
- A.10 – GB Rockets and Projectiles. Process codes X03 Thermal Unit (MPTs), X99 Other Subpart X (RWCS/MWS/SCWO), and T01 Tank treatment (ANRs) added to align the table with BGCAPP main plant processing units identified for the treatment of this waste stream. There is no change in treatment – this is an administrative update to correct the form.
- A.11 – Agent Hydrolysate. The X99 Other Subpart X (SCWO) is added to align Part A with BGCAPP main plant processing units identified for the treatment of this waste stream. There is no change in treatment – this is an administrative update to correct the table.
- A.12 Energetics Hydrolysate. The waste stream will not be produced due to process changes identified in this PMR and is deleted from the table.
- A.13 – Spent Decontamination Solution. T01 Tank treatment (SDS or ANR tanks) and X99 Other Subpart X (SCWO) are added to align table with BGCAPP main plant processing units identified for in the treatment of this waste stream. There is no change in treatment – this is an administrative update to correct the table. N801 Off-gas

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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1 Treatment (OTM) Condensate associated with treated GB wastes is added since OTM  
2 Condensate has the potential to be mixed with SDS.

- 3 • A.14 – SCWO Effluent. X99 Other Subpart X (RO) is added to align the table with  
4 BGCAPP main plant processing units identified for in the treatment of this waste stream.  
5 There is no change in treatment – this is an administrative update to correct the table.
- 6 • A.16 OTM Condensate. Process code X99 Other Subpart X (SCWO) are added to align  
7 the table with BGCAPP main plant processing units identified for in the treatment of this  
8 waste stream. There is no change in treatment – this is an administrative update to  
9 correct the table. Characteristic waste code D002 is added as the waste stream has the  
10 potential to be corrosive.
- 11 • A.17 OTE Condensate. The waste stream will not be produced due to process changes  
12 identified in this PMR and is deleted from the table.

**2.1.2 Change and update to A.III.A.(10) Spent Decontamination Solution**

14 The clearance limit for SDS for the VX projectile campaign is changed from 182 µg/L to 80 µg/L  
15 IAW limits proposed in the PTDP Volume 3. This change will also support the potential for  
16 offsite disposal and satisfy the associate transportation and receiving TSD facility requirements.

**2.1.3 Elimination of Equipment Associated with the Destruction of Energetics at the BGCAPP Main Plant**

19 In May of 2019, the United States Army released an Environmental Assessment outlining  
20 alternative methods for the destruction of BGAD's stockpile of M55 rockets filled with chemical  
21 nerve agents. The proposed action is to augment the chemical weapons destruction capability  
22 of the BGCAPP Main Plant to reduce safety risks identified with processing M55 rockets using  
23 the Rocket Shear Machines (RSMs), Energetics Batch Hydrolyzers (EBHs) and Energetics  
24 Neutralization Reactors (ENRs). Augmentation will be achieved by eliminating energetics  
25 associated equipment and installing a new RWCS in the BGCAPP Main Plant and subsequent  
26 transport of the containerized munitions to BGCA HWMUs for storage. Additionally,  
27 augmentation includes retrofitting the existing Explosive Destruction Technology (EDT) facility  
28 with a larger off-gas treatment system capable of processing chemical nerve agents and  
29 utilizing an additional Static Detonation Chamber (SDC) to process M55 rockets and/or  
30 components. The EDT and SDC permit modification requests and storage of containerized  
31 munitions in BGCA HWMUs are being addressed in separate Class 3 permit modification  
32 submittals. Processing of energetics and agent heels in the rocket warheads in the current EDT  
33 system with upgraded off-gas treatment system (OTS) and the additional SDC with suitable  
34 OTS will minimize risks associated with handling and processing the rocket warheads.

35 Energetics hydrolysate would have been blended with agent hydrolysate in the SPB prior to  
36 processing in the SCWO reactors. Elimination of energetics hydrolysate will require use of an  
37 energetics hydrolysate surrogate for blending with agent hydrolysate prior to its treatment.  
38 Energetics hydrolysate surrogate will consist of deionized water (~79%), sodium sulfate (~13%),  
39 sodium chloride (~7%), and ammonium sulfate (~1%), although the formulation percentages will  
40 be modified if necessary to allow eutectic salt flow through the SCWO reactors. The surrogate  
41 will be stored in a mobile tank located outside the SPB. The surrogate will be routed to the SPB  
42 aluminum filtration tank and then transferred to the blend tanks for mixing with agent  
43 hydrolysate. Use of energetics hydrolysate surrogate, which will not contain aluminum, is  
44 necessary to allow the proper eutectic flow to form in the SCWO reactors. Its use will allow  
45 destruction of agent hydrolysate in the SCWO process. The maximum total waste feed to the  
46 SCWO reactors (agent hydrolysate and energetics hydrolysate surrogate blend) will be the  
47 same as that planned for agent hydrolysate/energetics hydrolysate blends.



**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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1 With elimination of energetics destruction for rocket warheads, the Destruction and Removal  
2 Efficiency (DRE) determination will change, as energetics hydrolysate will not be generated and  
3 will not be included in the DRE calculation. A revised DRE calculation is complete and is  
4 submitted with this response.

5 Attachment Volume II contains drawings associated with the aforementioned modifications.

**2.1.4 Rocket Warhead Containerization System (RWCS)**

7 In order to support processing of warheads in the SDC units, M55 rockets will be de-mated and  
8 punched and drained using the existing Rocket Cutting Machine (RCM) and Punch and Drain  
9 Station (PDS). The RWCS will be used to containerize the warheads that have been separated  
10 from the rocket motor assembly and drained of chemical agent. Following the de-mating and  
11 punch and drain process, the warhead will proceed to a wrapping station where it will potentially  
12 be wrapped with a material suitable for minimizing spread of contamination prior to being  
13 transferred into a steel warhead canister. Note that the use of an orbital wrapper is currently  
14 considered as optional, as wrapping a rocket warhead will potentially be unnecessary.  
15 Warheads entering the ECR will be punched and drained at the RCM. The drained warhead is  
16 then transferred to the RWCS crimping station where it is placed into a steel warhead canister.  
17 Once in the canister, a plug is inserted into the opening of the canister and the canister is  
18 sealed to eliminate the ability for residual agent to escape. This loaded canister passes from the  
19 ECR to the EBH room through an airlock where the canister is weighed, and the amount of  
20 remaining agent is calculated based on the canister weight (and wrap weight, if applied) and a  
21 nominal undrained warhead weight. The canister is then passed to the labeling station where  
22 labels will be attached. Cannister labels include a QR code for barcode scanners, as well as  
23 processing information such as line serial number, cannister serial number, date, timestamp,  
24 and net weight. Hazardous waste markings and labels will be applied to the pallet in the facility  
25 and will include required RCRA information. The loaded and labeled canister is then placed onto  
26 a skid with integral liquid containment. Canisters will continue to be added to the transfer skid  
27 until up to 25 have been added to the skid or a decision is made to transfer the skid without  
28 filling. Once a decision is made that no additional canisters will be inserted into the skid, it will  
29 be processed into the tray transfer room. The skid is then monitored using near real-time  
30 monitoring via MINICAMS before being transported to permitted storage within the chemical  
31 limited Area (CLA) until further processing takes place in an SDC. The monitoring level will be  
32 specified in the MINICAMS/DAAMS Monitoring Table at the 95% confidence level for ensuring  
33 <1 VSL, which is currently an alarm level of 0.5 VSL.

34 As discussed in the RD&D permit application, separated rocket motors (RMs) will be transferred  
35 from the ECVs to the Motor Packing Room (MPR) and placed in boxes (container). The RMs in  
36 a box will be monitored out of the MPR as described in the MINICAMS/DAAMS Monitoring  
37 Table at the 95% confidence level for ensuring <1 VSL, which is currently an alarm level of 0.5  
38 VSL.

39 Additional monitoring of the RM box will also potentially occur in the BTRs, depending on the  
40 final disposal destination of the RMs. If disposal will occur at a site using chemical agent trained  
41 workers, then no further monitoring will be done. If disposal could occur at a site not using  
42 chemical agent trained workers, then monitoring of the RM boxes will be performed at one-half  
43 the Worker Protection Level (0.5 WPL) using DAAMS monitors. If DAAMS monitoring results  
44 are  $\geq 0.5$  WPL, then the RM box will be managed in either the MDB Unpack Areas (UPAs) or in  
45 Hazardous Waste Management Units F1001 or F1002 until RMs causing elevated readings can  
46 be isolated. The isolated RMs will be disposed separately at an appropriately permitted facility.  
47 Monitoring of the RM boxes by DAAMS will be performed solely to meet off-site acceptance of  
48 the RMs at facilities without chemical agent trained workers.

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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1 A revised DRE calculation (provided separately) considers agent emissions from the Main Plant  
2 stacks and RM boxes and agent contained in cleared agent hydrolysate batches. Emissions  
3 from the stacks and RM boxes, when considered in conjunction with the cleared agent  
4 hydrolysate, will meet the destruction and removal efficiency of at least 99.9999% to meet  
5 Kentucky statute 224.50-130 requirements. Consequently, detection of agent by DAAMS  
6 <0.5 VSL in the RM boxes in the BTRs will not be considered a release of agent into the  
7 environment.

8 The use of the RWCS will minimize risk to plant personnel through the use of robotics and  
9 containerization of the warheads. Subsequent treatment in the SDCs, which has proven  
10 successful at BGCAPP with the chemical agent mustard, as well as at other demilitarization  
11 sites, will also lower the risk of treatment of the warheads compared to treatment in the  
12 previously planned first-of-a-kind EBH and ENR treatment units.

13 Attachment Volume I contains drawings associated with the RWCS.

14 Attachment Volume III contains the RWCS Final Design Review package.

**2.1.5 Changes to Existing Permitted Storage Unit Capacities**

15  
16 Tray Container Transfer Room (Room 07-124). As a function of the new RWCS process the  
17 TCTR will have a conveyor system for movement of skids of rocket warheads in canisters. The  
18 increase in RCRA permitted storage capacity (550 gallons to 1,300 gallons) is necessary to  
19 accommodate rocket warheads in skids and includes sufficient additional storage capacity for  
20 various secondary waste generated from normal maintenance and operation of the areas  
21 systems. The proposed NEW for this area is 323 lbs. Based on the NEW, RCRA permitted  
22 storage would consist of 100 warheads in cannisters on 4 skids and additional secondary waste  
23 in containers. Examples of secondary wastes to be stored in the TCTR room include  
24 maintenance and operations wastes (parts from equipment and process repair, oils, hydraulic  
25 fluid, rags, etc.), discarded personal protective equipment (PPE), filters, rags, wipes, and other  
26 decontamination materials.

27 ECR 1 and ECR 2 (rooms 07-104 & 07-105) will each have a table for holding reject warhead  
28 canisters. The current RCRA storage capacity for these rooms are 55 gallons, an increase in  
29 RCRA permitted storage capacity (55 gallons to 70 gallons) is necessary to accommodate reject  
30 warhead canister storage on the tables and maintain sufficient storage capacity (1 x 55 gallon  
31 container) for various secondary waste generated from normal maintenance and operation of  
32 the areas systems. The proposed NEW for the ECRs is 6.5 lbs. and is representative of 2  
33 warheads not in cannister or 1 warhead not in cannister and 2 warheads in cannisters. Due to  
34 limits on blast loading, processing would be required to stop once the limit is reached and an  
35 entry made to overpack reject warhead(s) in an SRC or otherwise correct the off-normal  
36 condition prior to resuming normal operations.

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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1 The MWS room 07-135, as a result of experience gained in managing secondary waste during  
2 GB projectile processing operations in the BGCAPP main plant, a more comprehensive and  
3 thorough understanding of the generation of secondary waste and management processes ,  
4 requires additional RCRA permitted storage for secondary waste containers as well as anomaly  
5 projectiles. The requested change in storage area name and increase in RCRA permitted  
6 storage are as follows: MWS Reject Table – MJ-MWS-0103 current permitted capacity of 5  
7 gallons change to Munitions Washout System (Room 07-135) RCRA permitted storage capacity  
8 of 2755 gallons. The additional 2750 gallons requested for storage of secondary waste in  
9 containers and anomalous projectiles is necessary to allow efficient processing of munitions and  
10 effective safe, management and movement of secondary waste containers generated as a  
11 result of normal operations and maintenance activities performed in this area. The MWS room's  
12 RCRA permitted container storage will increase safety by reducing the number of entries into a  
13 toxic area and the associated risks. It will also support waste management and movement for  
14 agent or munitions changeover activities and facility closure operations. Examples of secondary  
15 wastes to be stored in the MWS room include maintenance and operations wastes such as  
16 parts from equipment and process repair, tools, oils, hydraulic fluid, rags, discarded PPE, filters,  
17 wipes, and other decontamination materials. Storage of anomalous projectiles is needed to  
18 allow these to be processed at the end of the projectile campaign. Examples of anomalous  
19 projectiles include those that show visual evidence of cracks, dents, or other deformities that  
20 might bind the Nose Closure Removal System (NCRS) or MWS Cavity Access Machines  
21 (CAMs). Anomalous projectiles that are leaking agent will be overpacked prior to storage in the  
22 MWS room.

**2.1.6 Addition of New Permitted Storage Units**

23  
24 The Energetics Batch Hydrolyzer (EBH) room (Room 07-111), as a function of the new RWCS  
25 process, will contain rocket warheads in cannisters and in skids. RCRA permitted storage  
26 capacity is necessary to accommodate skids of rocket warheads and drums of various  
27 secondary waste generated from normal maintenance and operation of the areas systems. The  
28 addition of 1000 gallons of RCRA permitted storage of secondary waste in containers is  
29 reasonable and necessary for efficient processing of munitions and effective safe, management  
30 and movement of secondary waste containers generated as a result of normal operations and  
31 maintenance performed in this area. The proposed NEW for this area is 162 lbs. Based on the  
32 proposed NEW, RCRA permitted storage would consist of 50 warheads in cannisters on 2 skids  
33 and additional secondary waste in containers. This change will also support waste management  
34 during agent and munitions changeover activities in addition to facility closure operations.  
35 Examples of secondary wastes include maintenance and operations wastes such as parts from  
36 equipment and process repair, tools, oils, hydraulic fluid, rags, PPE, filters, wipes, and other  
37 decontamination materials.



**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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1 Operations at the Main Plant facility generate significant quantities of secondary waste in the  
2 Toxic maintenance Area (TMA) as a normal function of munitions processing, decontamination,  
3 maintenance, and other miscellaneous activities. Examples of these wastes include parts from  
4 equipment and process repair, tools, oils, hydraulic fluid, rags, discarded PPE, filters, wipes,  
5 and other decontamination materials. The TMA's RCRA permitted storage capacity of 5,500 gal  
6 supports activities in this area in addition to movement of waste from other areas in the MDB.  
7 With the addition of the RWCS rocket warheads in cannisters and on skids will be moved  
8 through this area as a normal part of the RWCS process. The proposed NEW for this area is  
9 162 lbs. This is equivalent to 50 warheads in cannisters on two skids. The majority of wastes  
10 managed and stored in the TMA, with exception of the containerized warheads, will be removed  
11 from the MDB and shipped offsite for disposal. Movement of these waste containers from  
12 storage in the TMA RCRA permitted storage area to outside the MDB requires a significant  
13 effort and additional areas/rooms for processing and clearing these containers for safe removal  
14 from the MDB. Secondary waste containers stored in the TMA require monitoring of the exterior  
15 of the containers to ensure the containers do not pose an agent contamination and or agent  
16 release hazard prior to being transferred to UPA2 and or moved out of the MDB. The monitoring  
17 of the exterior of the waste containers is performed in TMA equipment room (07-133), and as  
18 necessary in UPA equipment room (07-134). The process of monitoring and movement of waste  
19 containers requires significant logistical considerations and personnel efforts in the form of toxic  
20 area entries. Depending on operational requirements and priorities the execution of this process  
21 may be done over a series of days or longer. RCRA permitted storage is sought for these areas  
22 in support of this process. The requested RCRA permitted storage capacity, addition of 1,100  
23 gallons each for TMA equipment room (07-133), and UPA equipment room (07-134) will support  
24 the safe and effective management of secondary wastes at the BGCAPP Main Plant facility.

25 Off-Gas Treatment System – Effluent (Room 07-140) includes both TOX units and cyclones and  
26 associated equipment. There are two drums located in this area to receive particulates  
27 separated from the air stream via the cyclone separator units. Management of these drums and  
28 secondary waste such as discarded PPE, tools, oils decontamination and cleanup materials,  
29 rags and wipes, from normal maintenance and operations of this area will produce secondary  
30 wastes that will be stored in this area prior to disposal. In addition, operations such as rebricking  
31 of the TOX units, agent changeover activities and closure conducted in these areas will produce  
32 significant quantities of listed secondary and characteristic wastes such as removed brick,  
33 discarded PPE, cleanup materials, etc. The requested addition of 2750 gallons of RCRA  
34 permitted storage is reasonable and necessary in these areas to support these activities.

35 Off-Gas Treatment System for the Metal Parts Treater (Room 07-141), normal operation and  
36 maintenance activities (i.e. equipment maintenance, instrument calibration, demister filter  
37 changeouts, scrubber liquid filter cleaning) generate solid and liquid secondary waste that will  
38 be necessary to temporarily store in this area. Examples of secondary wastes to be stored in  
39 the OTM room include parts from equipment and process repair tools, oils, rags, discarded  
40 PPE, filters, wipes, and other decontamination materials. Additionally, other non-routine repairs  
41 of the pollution abatement system will generate significant quantities of liquid from equipment  
42 and pipe flushing and solid waste that will need to be stored and managed in this area. The  
43 requested addition of 2750 gallons of RCRA permitted storage is reasonable and necessary in  
44 these areas to support these activities.

45 Additionally, the use of permitted storage areas will provide consistency of waste management  
46 practices (e.g., permitted waste storage inspections and tracking as opposed to a combination  
47 of satellite accumulation areas, 90-day and permitted inspections and or tracking) in the MDB.

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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**2.1.7 OTM Condensate Water Recovery by RO System**

The approved Class 1 Permit Modifications *SCWO Bypass* (Item 158) and *Off-Gas Treatment-Metal Parts Treater (OTM) Condensate Cooling with Reverse Osmosis (RO) Air-Cooled Heat Exchanger* (Item 586) allow OTM condensate to be placed in the SCWO Effluent Tanks MT-SCWO-0101, MT-SCWO-0201, and MT-SCWO-0301 and then subsequently transferred to the RO Reject Tanks MT-RO-0106 and MT-RO-0206 for loading into tankers at the truck loading station. The OTM condensate will contain low total dissolved solids (TDS), typically less than 1,000 mg/L of sodium salts of chloride, fluoride, phosphate, and sulfate, and represents a potential valuable source of SCWO quench water if processed through the RO System. Recovery of quench water from the OTM condensate will also minimize the amount that must be shipped offsite for disposal.

Processing of OTM condensate will not require additional capacity or alterations to the RO system. While the use of the RO system is a change in management standard for OTM condensate, the recovery and reuse of water from the OTM condensate and minimization of the OTM condensate to be shipped offsite and disposed constitutes “the greatest environmental benefit” available for this waste stream.

**2.1.8 Update of RCRA Critical Operating Parameters**

The Part B permit for the Main Plant incorporated by reference the RCRA Operations Plan as well as critical operating parameters from the RCRA Operations Plan into the permit. The KDEP DWM has agreed that future changes to operating parameters specified within the permit may be incorporated by permit modification and will not require an update to the RCRA Operations Plan.

Deletion of several Appendix F RCRA critical operating parameters is requested to represent removal of energetics processing in the Main Plant and addition of the RWCS system. As the energetics related equipment (EBHs, ENRs, APRs, AFS, etc.) will no longer be used, these parameters are not needed. The proposed RWCS critical parameter additions will provide operating limits for the RWCS system.

**2.2 Update of Part A**

Addition of the TMA equipment room, UPA equipment room, and EBH room as permitted storage areas, update of storage in the MWS and Tray Container Transfer rooms, addition of the RWCS process, removal of energetics processing, addition and deletion of waste streams and waste stream codes, and various administrative corrections require update of the Part A form. I. The updates and corrections include:

1. Change of section 6, line 6 Tray/Container Transfer Room to increase permitted storage quantity from 550 gallons to 1,300 gallons in support of RWCS modifications, as described in this PMR. This permitted storage capacity increase supports storage for containerized warheads and secondary waste drums. This includes up to four rocket warhead skids with 25 warheads per skid.
2. Change of section 6, line 17 Energetics Batch Hydrolyzer Room addition of 1,000 gallon permitted storage capacity in support of RWCS modifications, as described in this PMR. This includes up to two rocket warhead skids with 25 warheads per skid and secondary waste.
3. Change of section 6, line 15 -16 Explosive Containment Rooms 1 & 2 increase permitted storage quantity from 55 gallons to 70 gallons in support of RWCS modifications, as

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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- 1 described in this PMR. This permitted storage capacity increase supports storage for  
2 reject rocket warhead canisters at the RCWS reject station.
- 3 4. Change of section 6, line 18 TMA Equipment Room addition of 1,100 gallon permitted  
4 storage capacity in support of waste management activities, including two rocket  
5 warhead skids with 25 warheads per skid and secondary waste, as described in this  
6 PMR.
- 7 5. Change of section 6, line 19 UPA Equipment Room addition of 1,100 gallon permitted  
8 storage capacity in support of waste management activities, as described in this PMR.
- 9 6. Change of section 6, line 41 - 42 addition of Crimp Stations in support of RWCS  
10 modifications, as described in this PMR. The Crimp Stations processing rates are  
11 identified as 1,200 pounds per hour and match the processing rates of the Rocket Shear  
12 Machines.
- 13 7. Change of section 6, line 48 increase Munitions Washout System (MWS) permitted  
14 storage from 5 gallons for projectile reject table to 2755 gallons for storage of projectile  
15 anomalous rounds (5 gallons) and secondary waste generated by facility operations and  
16 maintenance activities.
- 17 8. Change of Section 6, line 64 description for former batch hydrolysate holding tank to  
18 "SCWO Processing Building (SPB) – Blend/Feed Tank/Batch Hydrolysate Holding Tank  
19 (formerly Batch Hydrolysate Holding Tank) – MT-SCWO-0032", which was converted to  
20 a blend and feed tank under permit modification item 522 submitted 12/12/2018 and  
21 approved by KDEP on 2/4/2019. This is an administrative correction.
- 22 9. Change of section 6, line 68 Addition of 2750 gallons permitted storage in the Off-Gas  
23 Treatment System – Effluent Room 07-140 for storage of waste generated by  
24 maintenance and operations activities, as described in this PMR.
- 25 10. Change of section 6, line 69 Addition of 2750 gallons permitted storage in the Off-Gas  
26 Treatment System – Metal Parts Treater Room 07-140 for storage of waste generated  
27 by maintenance and operations activities, as described in this PMR.
- 28 11. Change of section 7 line 11 - 21 Addition of new waste stream, waste codes, quantities  
29 and process codes for GB warheads in canisters, as described in this PMR.
- 30 12. Change of section 7, line 38 Increase annual waste quantity of rocket motors to reflect  
31 current process maximum, as described in this PMR.
- 32 13. Change of section 7, line 133 Addition of X03 miscellaneous unit thermal treatment  
33 process code for munitions and munition components representing the MPT and thermal  
34 treatment, as described in this PMR. Update annual waste quantity to reflect GB rockets  
35 and projectiles, as described in this PMR.
- 36 14. Change of section 7, line 145 Update in agent hydrolysate annual waste quantity to  
37 reflect RWCS process change, as described in this PMR.
- 38 15. Change of section 7, line 170 Addition of D002 waste code consistent with Section 2.1.6  
39 of this PMR.
- 40 16. Update of waste descriptions provided for Section 11 comments (continued) as needed.
- 41 17. Update of Kentucky form DWM 7058A for consistency:
- 42 a. Tray/Container Transfer Room (TCT); Store various secondary wastes and  
43 containerized warheads
- 44 b. Explosive Containment Room (ECR) Storage Area No. 1, ECR-1; Store various  
45 secondary wastes, reject warheads, rejected canisters
- 46 c. Explosive Containment Room (ECR) Storage Area No. 2, ECR-2; Store various  
47 secondary wastes, reject warheads, rejected canisters
- 48 d. Energetics Bulk Hydrolysis Room (EBH), Store containerized warheads on  
49 pallets
- 50 e. Toxic maintenance Area Equipment Room (TMA), Store various secondary  
51 wastes

### Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates

- f. Unpack Area Equipment Room, Store various secondary wastes
- g. Rocket Warhead Crimp Station (RWCS) - MJ-RWCS-0107; Containerizes and seals rocket warheads into overpack containers.
- h. Rocket Warhead Crimp Station (RWCS) - MJ-RWCS-0108; Containerizes and seals rocket warheads into overpack containers.
- i. Munitions Washout System area provides container storage for projectile rejects associated with the MWS and various secondary waste associate with facility operations and maintenance activities.
- j. SCWO Processing Building (SPB) – Hydrolysate Blend Tank – MT-SCWO-0030; Blending of agent hydrolysate, energetics hydrolysate surrogate and feed additives to feed to the SCWO reactors.
- k. SCWO Processing Building (SPB) – Hydrolysate Blend Tank – MT-SCWO-0031; Blending of agent hydrolysate, energetics hydrolysate surrogate and feed additives to feed to the SCWO reactors.
- l. SCWO processing building (SPB) – blend/feed tank (formerly batch hydrolysate holding tank) – MT-SCWO-0032; Blending of agent hydrolysate, energetics hydrolysate surrogate and feed additives to feed to the SCWO reactors.
- m. Off-Gas Treatment System – Effluent Room 07-140 Provides container storage for Cyclone dust collection drums and various secondary waste associate with facility operations and maintenance activities
- n. Off-Gas Treatment System – Metal Parts Treater Room 07-141 Provides container storage for OTM system wastes and various secondary waste associate with facility operations and maintenance activities

## 2.3 Requested Changes and Related Supporting Documents

Per 401 KAR 39:060 Section 5 (40 CFR §270.42(b)(1)(i)), the applicant is required to describe the exact changes to be made to the Permit and its supporting documents.

In the proposed modification, equipment associated with the destruction of energetics will be eliminated, a RWCS will be installed, and other changes as described in Sections 2.1 and 2.2 will be implemented. Proposed changes to the permit are included in Appendix A.

## 2.4 Class of Permit Modifications

Per 401 KAR 39:060 Section 5 (40 CFR §270.42(c)(2)(ii)), the applicant is required to identify the class of the permit modification. The proposed changes are being submitted as Class 3 modifications based on the criteria in 40 CFR §270.42(d), modifications that substantially alter the facility or its operation.

## 3.0 Other Applicable Information

Per 401 KAR 39:060 Section 5 (40 CFR §270.42(c)(1)(iv)), the applicant is required to provide applicable information required by 40 CFR 270.13 through 270.22, 270.62, 270.63 and 270.66. Appendix A provides a listing of these as well as applicable 40 CFR 264 requirements (incorporated by reference); requirements affected by this PMR are indicated, along with the section(s) of the permit that would be modified or clarified.

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

**Appendix A : Permit Related Information or Documents Affected by PMR**

| Regulatory Citation(s)<br>401 KAR 39<br>(incorporating<br>40 CFR Part 264<br>where applicable) | Description of Requirement   | Modified or Clarified Information |    |  |
|--|--|-----------------------------------|----|--|
|  |  | Yes                               | No | Sections of the Part B Permit Application Modified or Modified Documents |
| <b>39:090 Sec. 1 (264 Subpart B)</b>   | <b>General Facility Standards</b>                                    |                                   |    |  |
| 39:090 Sec. 1 (§264.11)  | Identification number  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.12)  | Required notices   |                                   | ✓  | Not applicable   |
| 39:090 Sec. 1 (§264.13)  | General waste analysis   |                                   | ✓  | No change required; applicable streams covered by current WAP            |
| 39:090 Sec. 1 (§264.14)  | Security   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.15)  | General inspection requirements                                      |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.16)  | Personnel training   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.17)  | General requirements for ignitable, reactive, or incompatible wastes |                                   | ✓  | No change  |
| 39:090 Sec. 1  | Location standards<br>Geological Information                         |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.19)  | Construction quality assurance program                               |                                   | ✓  | No change  |
| <b>39:090 Sec. 1 (264 Subpart C)</b>   | <b>Preparedness and Prevention</b>                                   |                                   |    |  |
| 39:090 Sec. 1 (§264.31)  | Design and operation of facility                                     |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.32)  | Required equipment   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.33)  | Testing and maintenance of equipment                                 |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.34)  | Access to communication or alarm system                              |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.35)  | Required aisle space   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.37)  | Arrangements with local authorities                                  |                                   | ✓  | No change  |
| <b>39:090 Sec. 1 (264 Subpart D)</b>   | <b>Contingency Plan and Emergency Procedures</b>                     |                                   |    |  |
| 39:090 Sec. 1 (§264.51)  | Purpose and implementation of contingency plan                       |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.52)  | Content of contingency plan  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.53)  | Copies of contingency plan   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.54)  | Amendment of contingency plan  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.55)  | Emergency coordinator  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.56)  | Emergency procedures   |                                   | ✓  | No change  |
| <b>39:090 Sec. 1 (264 Subpart E)</b>   | <b>Manifest System, Recordkeeping, and Reporting</b>                 |                                   |    |  |
| 39:090 Sec. 1 (§264.71)  | Use of the manifest system   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.72)  | Manifest discrepancies   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.73)  | Operating record   |                                   | ✓  | No change  |



**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

| Regulatory Citation(s)<br><b>401 KAR 39<br/>(incorporating<br/>40 CFR Part 264<br/>where applicable)</b> | Description of Requirement   | Modified or Clarified Information |    |  |
|--|--|-----------------------------------|----|--|
|  |  | Yes                               | No | Sections of the Part B Permit Application Modified or Modified Documents |
| 39:090 Sec. 1 (§264.74)  | Availability, retention, and disposition of records  |                                   | ✓  | No change  |
| 39:090 Sec. 1  | Annual report  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.76)  | Unmanifested waste report  |                                   | ✓  | No change  |
| 39:090 Sec. 1  | Additional reports   |                                   | ✓  | No change  |
| <b>39:090 Sec. 1 (264 Subpart F)</b>   | <b>Releases from Solid Waste Management Units</b>  |                                   |    |  |
| 39:090 Sec. 1 (§264.91)  | Required programs  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.92)  | Ground-water protection standard   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.93)  | Hazardous constituents   |                                   | ✓  | No change  |
| 39:090 Sec. 1  | Concentration limits   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.95)  | Point of compliance  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.96)  | Compliance period  |                                   | ✓  | No change  |
| 39:090 Sec. 1 and §264.97  | General ground-water monitoring requirements   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.98)  | Detection monitoring program   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.99)  | Compliance monitoring program  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.100)   | Corrective action program  |                                   | ✓  | No change  |
| 39:090 Sec. 1  | Releases from solid waste management units - corrective action for solid waste management units  |                                   | ✓  | No change  |
| 39:090 Sec. 1  | Incorporation by reference - groundwater analysis and report forms   |                                   | ✓  | No change  |
| <b>39:090 Sec. 1 (264 Subpart G)</b>   | <b>Closure and Post-Closure</b>  |                                   |    |  |
| 39:090 Sec. 1 (§264.111)   | Closure performance standard   |                                   | ✓  | No change  |
| 39:090 Sec. 1 and §264.112   | Written plan, content of plan, amendment of plan, notification of partial closure and final closure, removal of wastes and decontamination or dismantling of equipment |                                   | ✓  | No change  |
| 39:090 Sec. 1 and §264.113   | Time allowed for closure   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.114)   | Disposal or decontamination of equipment, structures, and soils  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.115)   | Certification of closure   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.116)   | Survey plat  |                                   | ✓  | No change  |
| 39:090 Sec. 1 and §264.117   | Post-closure care and use of property  |                                   | ✓  | No change  |
| 39:090 Sec. 1 and §264.118   | Post-closure plan and amendment of plan  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.119)   | Post-closure notices   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.120)   | Certification of completion of post-closure care   |                                   | ✓  | No change  |
| <b>39:090 Sec. 1 (264 Subpart H)</b>   | <b>Financial Requirements</b>  |                                   | ✓  | No applicable  |

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

| Regulatory Citation(s)<br><b>401 KAR 39<br/>(incorporating<br/>40 CFR Part 264<br/>where applicable)</b> | Description of Requirement   | Modified or Clarified Information |    |  |
|--|--|-----------------------------------|----|--|
|  |  | Yes                               | No | Sections of the Part B Permit Application Modified or Modified Documents |
| <b>39:090 Sec. 1 (264 Subpart I)</b>   | <b>Use and Management of Containers</b>  |                                   |    |  |
| 39:090 Sec. 1 (§264.171)   | Condition of containers  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.172)   | Compatibility of waste with containers   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.173)   | Management of containers   | ✓                                 |    | Additional storage area information included                             |
| 39:090 Sec. 1 (§264.174)   | Inspections  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.175)   | Containment  | ✓                                 |    | Additional storage area information included                             |
| 39:090 Sec. 1 (§264.176)   | Special requirements for ignitable or reactive waste                                 |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.177)   | Special requirements for incompatible wastes   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.178)   | Closure  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.179)   | Air emission standards   |                                   | ✓  | No change  |
| <b>39:090 Sec. 1 (264 Subpart J)</b>   | <b>Tank Systems</b>  |                                   |    |  |
| 39:090 Sec. 1 (§264.191)   | Assessment of existing tank system's integrity                                       |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.192)   | Design and installation of new tank systems or components                            |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.193)   | Containment and detection of releases  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.194)   | General operating requirements   | ✓                                 |    |  |
| 39:090 Sec. 1 (§264.195)   | Inspections  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.196)   | Response to leaks or spills and disposition of leaking or unfit-for-use tank systems |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.197)   | Closure and post-closure care  |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.198)   | Special requirements for ignitable or reactive wastes                                |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.199)   | Special requirements for incompatible wastes   |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.200)   | Air emissions standards  |                                   | ✓  | No change  |
| 39:090 Sec. 1  | Effective dates  |                                   | ✓  | No change  |
| <b>39:090 Sec. 1 (264 Subpart X)</b>   | <b>Miscellaneous Units</b>   |                                   |    |  |
| 39:090 Sec. 1 (§264.601)   | Environmental performance standards  | ✓                                 |    | Additional details provided  |
| 39:090 Sec. 1 (§264.602)   | Monitoring, analysis, inspection, response, reporting, and corrective action         |                                   | ✓  | No change  |
| 39:090 Sec. 1 (§264.603)   | Post-closure care  |                                   | ✓  | No change  |
| <b>39:090 Sec. 6</b>   | <b>Treatment of Nerve and Blister Agents</b>   | ✓                                 |    | Additional details provided  |
| <b>Appendices</b>  |  |                                   |    |  |
| 39:090 Sec. 1 (264 Appendix I)   | Recordkeeping instructions   |                                   | ✓  | No change  |

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

| Regulatory Citation(s)<br><b>401 KAR 39<br/>(incorporating<br/>40 CFR Part 264<br/>where applicable)</b> | Description of Requirement                                     | Modified or Clarified Information |    |  |
|--|--|-----------------------------------|----|--|
|  |  | Yes                               | No | Sections of the Part B Permit Application Modified or Modified Documents |
| 39:090 Sec. 1 (264 Appendix IV)  | Cochran's approximation to the Behrens-Fisher Students' T-Test |                                   | ✓  | No change  |
| 39:090 Sec. 1 (264 Appendix V)   | Examples of potentially incompatible waste                     |                                   | ✓  | No change  |
| 39:090 Sec. 1 (264 Appendix IX)  | List of hazardous constituents for groundwater monitoring      |                                   | ✓  | No change  |

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| Regulatory Citation(s)<br><b>401 KAR 39<br/>(incorporating<br/>40 CFR Part 270 where<br/>applicable)</b> | Description of Requirement  | Modified or Clarified Information |    |  |
|--|---|-----------------------------------|----|--|
|  |   | Yes                               | No | Sections of the Part B Permit Application Modified or Modified Documents |
| <b>39:060 Sec. 5 (270 Subpart A)</b>   | <b>General Information</b>  |                                   |    |  |
| 39:060 Sec. 5  | Considerations under Federal law  |                                   | ✓  | No change  |
| 39:060 Sec. 5 (§270.4)   | Effect of a permit  |                                   | ✓  | No change  |
| 39:060 Sec. 5  | Prohibition of use of unpermitted facility  |                                   | ✓  | No change  |
| 39:060 Sec. 5 (§270.5)   | Noncompliance and program reporting by the cabinet  |                                   | ✓  | No change  |
| <b>39:060 Sec. 5 (270 Subpart C)</b>   | <b>Permit Conditions</b>  |                                   |    |  |
| 39:060 Sec. 5 and §270.30  | Conditions applicable to all permits  |                                   | ✓  | No change  |
| 39:060 Sec. 5 (§270.31)  | Requirements for recording and reporting of monitoring results  |                                   | ✓  | No change  |
| 39:060 Sec. 5 and §270.32  | Establishing permit conditions  |                                   | ✓  | No change  |
| 39:060 Sec. 5 (§270.33)  | Schedules of compliance   |                                   | ✓  | No change  |
| <b>39:060 Sec. 5</b>   | <b>Contents of Part A of the Permit Application (Form 7058A)</b>  | ✓                                 |    | Updated Part A provided  |
| <b>39:060 Sec. 5</b>   | <b>General Contents of Part B Application</b>   |                                   |    |  |
| 39:060 Sec. 5 (§270.14(a))   | Contents of Part B: General requirements<br>Certified documents   | ✓                                 |    | Additional details provided  |
| 39:060 Sec. 5 and §270.14  | General information requirements<br>General description<br>Topographic map<br>Seismic considerations<br>Subsurface geology and Karst features<br>Groundwater monitoring<br>Floodplain requirements<br>Traffic information<br>Alternative analysis plan<br>Past compliance record<br>Financial responsibility to construct and operate |                                   | ✓  | No change  |
| 39:060 Sec. 5 (§270.14(b) (11))  | Location information  |                                   | ✓  | No change  |

**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

|                                |   |   |   |                             |
|--------------------------------|---|---|---|-----------------------------|
| 39:060 Sec. 5 (§270.14(c))     | Additional groundwater protection information requirements  |   | ✓ | No change                   |
| 39:060 Sec. 5 (§270.14(d))     | Information requirements for solid waste management units   |   | ✓ | No change                   |
| <b>39:060 Sec. 5 (§270.15)</b> | <b>Specific Part B information requirements for containers</b>  |   | ✓ | No change                   |
| <b>39:060 Sec. 5 (§270.16)</b> | <b>Specific Part B information requirements for tanks</b><br>Number, location, and types of tanks<br>Tank dimensions and capacity<br>Procedures for handling incompatible, ignitable, or reactive wastes<br>Material of construction, volume, dimensions and all design details<br>Type of waste contained in tanks<br>Operating pressure and temperature<br>Description of the feed systems, safety cutoff, bypasses systems, and pressure controls<br>Diagrams of piping, instrumentation and process flow for each tank system | ✓ |   | Additional details provided |
| <b>39:060 Sec. 5 (§270.23)</b> | Description<br>Treatment unit design/construction details<br>Site assessments<br>Potential exposure pathways<br>Effectiveness of treatment  | ✓ |   | Additional details provided |
| <b>39:060 Sec. 5 (§270.65)</b> | <b>Part B RCRA permit</b>   | ✓ |   | Additional details provided |

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**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket  
Management and Miscellaneous Permit Updates**

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**Proposed Permit Modifications**



**Class 3 Hazardous Waste Storage & Treatment Permit Modification Request, Change in Rocket Management and Miscellaneous Permit Updates**

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- 1 Proposed permit modifications are attached. Suggested additions are included in red, and
- 2 suggested removal is included as ~~striethrough~~. To facilitate review, proposed items related to
- 3 energetics equipment removal and the RWCS are highlighted in green; other proposed changes
- 4 are highlighted in grey.