BAE SYSTEMS

ORDNANCE SYSTEMS INC.
Radford Army Ammunition Plant
4050 Pepper's Ferry Road
Radford Virginia 24141

June 3, 2015

Mr. Aziz Farahmand, P.E.
Waste Program Manager
Blue Ridge Regional Office
Virginia Department of Environmental Quality
3019 Peters Creek Road
Roanoke, Virginia 24019

**Subject:** **Request for Temporary Authorization for Container Storage**
**Radford Army Ammunition Plant (RFAAP)**
**VA 1210020730**

Dear Mr. Farahmand,

Attached is a request, in accordance with 40 CFR 270.42(e)(2)(i)(B), for a temporary (180 day) authorization for container storage. The request is for a class 3 modification that meets the criteria in paragraph (3)(ii)(B) "To allow treatment or storage in tanks or containers, or in containment buildings in accordance with 40 CFR part 268" and/or meets the criteria in paragraph (3)(ii)(D) "To enable the permittee to respond to sudden changes in the types or quantities of the wastes managed under the facility permit."

**Justification:**

- BAE operates Incinerators 440 and 441 to destroy off-specification or production waste propellant mixtures. Incinerators 440 and 441 are identical in every aspect of their design and operation and are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWCs) codified in Title 40 Code of Federal Regulations (CFR) Part 63 Subpart EEE. During the week of April 6 – 10th, 2015, BAE completed a Comprehensive Performance Test (CPT) to demonstrated compliance with the HWC NESHAP replacement standards for Hazardous Waste Incinerators. The results of this test showed that our 440 unit is emitting the low volatile metal chromium in excess of the standard limit of 92 micrograms/dry standard cubic meter. Once these results became known, the Incinerator Area was immediately shut down and the Virginia DEQ was notified. BAE is actively seeking a root cause to the failure and must perform another CPT before either unit can be restarted to treat waste explosives. We currently have 10, 011 pounds (213 containers) of propellant waste with an approved 30 day extension to the 90 day accumulation time limit set aside to rerun the CPT once the root cause has been found and corrective actions taken. As of June 3rd 2015, the oldest waste start date is 2/25/15 and the 120th day will come about on 6/25/15.

At this time we will need to begin to move waste to either building under an approved Temporary Storage Authorization.

**Process:**

RFAAP has identified two potential buildings for container storage. These are buildings 1955 and 1917. The expectation is that each building will continue to be available and used as a 90 day accumulation building. Only waste that is in excess of the 90 day accumulation time frame will be managed as container storage under the requested temporary authorization in compliance with the requirements of 40 CFR 264 Subpart I (264.170-179) as itemized below. In general, these requirements do not deviate from the requirements of 40 CFR 265 Subpart I (265.170-179) that already apply to the containers for 90 day accumulation as a large quantity generator. In addition the general parts of 40 CFR 264 which are covered in the Incinerator permit continue to apply.

These buildings were constructed in the late 1950's. Drawing Number HRP-37-4787 is attached. Each building consists of a concrete floor, concrete walls, and a concrete roof structure. The walls and roof prevent run-on of precipitation and building floor is sloped to provide secondary containment.

**Compliance with 40 CFR 264**

The requirements of 40 CFR 264 Subpart B General Facility Standards (such as waste analysis plan, security, and training) will be complied with by following the requirements in the Incinerator operating permit.

The requirements of 40 CFR 264 Subpart C Preparedness and Prevention (such as testing and maintenance of equipment, and communication) will be complied with by following the requirements in the Incinerator operating permit. In addition, 40 CFR 264.35 requires "The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, *unless* it can be demonstrated to the Regional Administrator that aisle space is not needed for any of these purposes." The aisle space requirements will be met by maintaining adequate aisle space to inspect containers for leaks. In case of an emergency, personnel exit the building until it is safe to return to the building. Spill control equipment generally consists of dust pan and brushes that do not require significant aisle space. In addition, since only a small amount (typically 47 lbs.) of waste is in each container, the containers can be moved without much trouble.

The requirements of 40 CFR 264 Subpart D Contingency Plan and Emergency Procedures will be complied with by following the requirements in the Incinerator operating permit.

The requirements of 40 CFR 264 Subpart E Manifest System, record Keeping, and reporting will be complied with by following the requirements in the Incinerator operating permit.

The requirements of 40 CFR 264 Subpart F Releases from Solid Waste Management Units will be complied with if any releases from the container storage area occur. The potential for releases will be minimized by complying with the 40 CFR 264 Subpart I container storage requirements, including using non leaking containers, conducting inspections and having secondary containment.

In addition, the facility minimizes releases by following strict explosive safety procedures and handling wastes in small quantities in each container.

The requirements of 40 CFR 264 Subpart G Closure and Post Closure will be complied with in accordance with the closure requirements in 40 CFR 264 Subpart I detailed below.

The facility is exempt from the requirements of 40 CFR 264 Subpart H Financial Requirements in accordance with 40 CFR 264.140(c) since it is a federal facility.

The requirements of 40 CFR 264 Subpart I Use and Management of Containers are directly applicable to the temporary authorization requested and are discussed in detail below.

The requirements of 40 CFR 264 Subpart J through BB and Subpart DD do not apply.

The requirements of 40 CFR 264 Subpart CC Air Emission Standards for tanks, surface impoundments, and containers are referenced in Subpart I and discussed in detail in the Subpart I discussion below.

The requirements of 40 CFR 264 Subpart EE Hazardous Waste Munitions and Explosives Storage will be complied with by following the Army and BAE explosive safety procedures. Buildings 1955 and 1917 are earth covered magazines (40 CFR 264.1201(b)(1).

**40 CFR 264 Subpart I Use and Management of Containers**

**264.170 Applicability.**

Applicability is requested by this request for temporary authorization for container storage

**264.171 Condition of containers**

**Substantially the same as** 40 CFR 265 171- No additional requirements. Containers are expected to be either the 20 gallon plastic tubs used for on-plant management of waste explosives, or containers approved for shipment in accordance with DOT requirements. All containers will be in good condition and not leaking. Any containers found to be leaking will be transferred to a non-leaking container in accordance with Plant safety rules.

**§ 264.172 Compatibility of waste with containers**

**Substantially the same as** 40 CFR 265 172- No additional requirements. Containers are expected to be either the 20 gallon plastic tubs used for on-plant management of waste explosives, or containers approved for shipment in accordance with DOT requirements. Containers are compatible with the waste materials.

**§ 264.173 Management of containers.**

(a) A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

**Substantially the same as** 40 CFR 265 173(a) - No additional requirements

(b) A container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.

**Substantially the same as** 40 CFR 265 173(b) - No additional requirements

**§ 264.174 Inspections.**

At least weekly, the owner or operator must inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system

**Substantially the same as** 40 CFR 265 174 – EXCEPT that the containment system must be inspected. (See 264.175 Containment)

**§ 264.175 Containment.**

**NEW REQUIREMENT**

*(1) A base must underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed;*

Building 1955 and 1917 were built in the late 1950's. An excerpt from Drawing Number HRP-37-4787 that shows the concrete floor construction is attached (**This drawing is only to be used by DEQ personnel processing this request and is not to be released to the public)**. The concrete floor consists of a broken stone sub grade, a water proof paper, a three (3) inch concrete subfloor, a five (5) ply membrane waterproofing, and a four (4) inch concrete finished floor. The finished floor has two expansion joints that use premolded expansion "T' on top of the five (5) ply membrane waterproofing and then is sealed with poured mastic.

*(2) The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids;*

The floor of the buildings slope from the center to the outside walls. A "gutter" at the outside wall slopes from the back of the building to the front.

*3) The containment system must have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination;*

See engineering calculations at the end

*(4) Run-on into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to that required in paragraph (b)(3) of this section to contain any run-on which might enter the system; and*

The walls and roof structure prevent run on. Since the buildings are earth covered magazines some condensation does occur on the walls that then drains to the containment system.

*(5) Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system.* The containment system will be observed each time waste is removed from the building for excess accumulation of liquid. When excess liquid is observed the liquid will be removed.

**§ 264.176 Special requirements for ignitable or reactive waste.**

Containers holding ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility's property line.

**Substantially the same as** 40 CFR 265 176 - No additional requirements. Buildings are more than 50 feet from the facility property line.

**§ 264.177 Special requirements for incompatible wastes.**

**Substantially the same as** 40 CFR 265 177 - No additional requirements. Facility's safety program has stringent policies to prevent incompatibilities.

**§ 264.178 Closure.**

**NEW REQUIREMENT**

*At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.*

At the end of the temporary authorization for container storage the building will revert back to its status as a less than 90 day container accumulation building. It is expected that no leaking containers will have been found and no spills will have occurred. However, if spill of leaks do occur they will be addressed safely and promptly. All solids (if any) and fluids will be characterized, removed from the secondary containment system, and managed as a solid and/or hazardous waste.

**§ 264.179 Air emission standards.**

**Substantially the same as** 40 CFR 265 178 - No additional requirements. Facility complies with air emission standards for containers for waste to be managed on plant by using 20 gallon containers. In accordance with 40 CFR 264.1080(b)(2) the air emission standards do not apply to containers with a design capacity less than 0.1 meters cubed (equivalent to 26.4 gallons). For materials that will be shipped off plant the facility complies with the air emission standards by using containers with a design capacity less than 0.46 meters cubed (less than approximately 121 gallons) and the level 1 standards. In summary this requires that the container must comply with DOT regulations, be closed, and be inspected upon receipt.

Engineering Calculations for Secondary Containment System.

Much of the explosive waste managed at the facility is maintained in a water wet state for safety purposes and the facility cannot certify that all the waste managed under the temporary authorization does not contain free liquids. In addition, no liquid waste is managed in these containers. Therefore, an analysis of the required secondary containment is presented below followed by an analysis of the secondary containment available at the selected buildings facility.

The required secondary containment is based on the 40 CFR 264.175(b)3 requirement "*The containment system must have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination.* "Based on the container size, typical aisle space and available floor area the maximum number of containers is estimated at 1000. Prior to movement from management under large quantity generator rules, containers will be inspected for significant free liquids and the free liquids will be decanted off. It is estimated that less than 20% of the containers managed under the temporary authorization will contain any significant free liquids or 200 containers. Each container containing waste for management on plant contains 47 lbs. of waste material (all of which is not liquid) or approximately 5.6 gallons if the material is assumed to be water (8.34 lbs. per gallon). The volume of waste material requiring secondary containment is then 200 x 5.6 or 1,120 gallons. The required secondary containment volume is then 10% of 1,120 or 112 gallons.

The available secondary containment volume is based on the floor area and slopes. First the end of the gutter is plugged. The gutter is three (3) inches wide for the 141 foot length of the building. The gutter depth ranges from 0.5 inches at the back of the building to 2 inches deep at the front of the building. The volume of the gutter can be calculated using the area of a trapezoid {(b1 + b2)/2 x h} x the width where b1 equals 0.5 inches, b2 equals 2 inches, h= 141 feet and width equals 3 inches. {(0.5+2)/2 x 141*12 x 3 = 6345 cubic inches or 3.67 cubic feet or 27.4 gallons}. The building floor slopes from the center toward the walls at a rate of 1 inch in 20 feet or 0.05 inch per foot. The gutter drain is plugged so the first potential release point is the door. A door is located on each side of the building 6 feet from the wall. The elevation of the floor at a distance six feet from the wall is 0.3 inches above the elevation of the floor at the wall. The volume of the floor area available for containment can be calculated using the area of a triangle (1/2 b x h) times the building length where b equals 6 feet h equals 0.3 inches or 0.025 feet and length equals 141 feet (1/2 * 6 * 0.025 x 141 = 10.57 cubic feet or 79.1 gallons. Each side of the building therefore has 79.4 plus 27.4 or 106.5 gallons of available secondary containment capacity, for a total secondary containment capacity of 213 gallons.

If you have any questions or concerns, please contact Mr. Matt Alberts at 540/639-8722 (matt.alberts@baesystems.com).

Sincerely,

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