

Virginia Department of Environmental Quality  
Land Protection and Revitalization Division  
Office of Waste Permitting and Compliance  
629 E. Main St., P.O. Box 1105, Richmond, VA 23218-000

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**FACT SHEET**

**DRAFT HAZARDOUS WASTE MANAGEMENT PERMIT  
for CORRECTIVE ACTION**

**Radford Army Ammunition Plant  
Radford, Virginia  
EPA ID No. VA1210020730**

This fact sheet is prepared in accordance with the requirements of the Virginia Hazardous Waste Management Regulations (VHWMR), 9 VAC 20-60-124, as incorporated by reference under 40 CFR § 124.8. This fact sheet provides information on: the current status of the facility, the facility background, the facility's current hazardous waste management activities, and the public comment period, associated with the draft Hazardous Waste Management Permit for Corrective Action (CA) for renewal, with the incorporation of the Final Remedy Decision, which was issued by EPA titled Final Decision and Response to Comments (FDRTC) on August 18, 2014.

<b><u>Date:</u></b>	December 22, 2015
<b><u>Name and Address of Facility</u></b>	Radford Army Ammunition Plant 4050 Peppers Ferry Road Radford, VA 24143
<b><u>Owner/Operator</u></b>	U.S. Army/BAE Systems, Ordnance Systems Inc. 4050 Peppers Ferry Road Radford, VA 24143
<b><u>EPA Facility ID Number</u></b>	VA1210020730
<b><u>Type of Permit</u></b>	Hazardous Waste Management Permit for Corrective Action for renewal, with the incorporation of the Final Remedy Decision, which was issued by EPA titled Final Decision and Response to Comments (FDRTC) on August 18, 2014.

## **Introduction - Facility Background - Draft Permit**

Radford Army Ammunition Plant (RFAAP) is an operating hazardous waste management facility. The RFAAP encompasses approximately 4,104 acres of land and is located in southwest Virginia in Pulaski and Montgomery Counties approximately 5 miles northeast of the city of Radford, 10 miles west of Blacksburg, and 47 miles southwest of Roanoke. The New River separates Pulaski and Montgomery Counties and also divides the RFAAP into two (2) portions commonly known as the Horseshoe Area and the Main Manufacturing Area (MMA). Solid Waste Management Units (SWMUs) or areas described in the Corrective Action Permit are located in the MMA and referred to as the RFAAP or the facility.

RFAAP is an active manufacturer of explosives and propellants for the US military and other commercial uses. RFAAP began manufacturing propellants in the 1940s and continues that work to this day. RFAAP has also produced TNT on an intermittent basis. RFAAP was first issued a RCRA Corrective Action Permit by the U.S. EPA in 1989. The permit was reissued in October 2000. Pursuant to the 2000 permit, approximately 80 Corrective Action Units (CAUs) were identified for investigation and potential remediation. A CAU is a contiguous area of land on or in which hazardous waste is placed. Examples of CAUs consist of SWMUs Areas of Concern (AOCs), Site Screening Areas (SSAs) and Miscellaneous Units (MUs).

A FDRTC was issued by the EPA in April 2012 for a majority of the CAUs. The FDRTC references a Statement of Basis (SB) from May 2011 that identifies the remedies for individual CAUs at the facility. Remedies included No Further Action (NFA), Engineering Controls (ECs), Institutional Controls (ICs), and Monitored Natural Attenuation (MNA) and/or long term groundwater monitoring. The EPA and the Virginia Department of Environmental Quality (DEQ) issued final remedies for four CAUs in an August 2014 FDRTC.

The draft permit is based on the assumption that the information submitted in the Part A and Part B Permit Application dated June 22, 2015 is complete and accurate. DEQ has reviewed the permit application and has found the Part A and B permit application submittals to be technically adequate and complete to comply with the requirements of the Virginia Hazardous Waste Management Regulations (VHWMR).

Therefore, pursuant to VHWMR, under 9 VAC 20-60-124, and as adopted by reference, 40 CFR § 124.6, the DEQ has prepared a draft permit for renewal, with the incorporation of the Final Remedy Decision, which was issued by EPA titled FDRTC on August 18, 2014.

## **Corrective Action Unit Descriptions**

### **SWMU 13**

SWMU 13 is the area outside the Open Burning Ground (OBG). It consists of a 1.6-acre area between the OBG and the north bank of the New River in the western section of the Horseshoe Area. The unit is located topographically downhill from the OBG and likely received drainage from the OBG prior to the reconfiguration of the OBG to prevent storm water runoff from the unit. Open burning of waste and off-specification energetic products has been performed

continuously at the OBG since manufacturing operation began at RFAAP in 1941. A RCRA Subpart X Permit was issued by the DEQ in October, 2005 for open burning at the OBG.

#### **SWMU 40**

SWMU 40 is the Landfill Nitro Area located within the south-central portion of the MMA. SWMU 40 is a 2-acre undeveloped, open grass-covered area, with the exception of a gravel covered area used for temporary storage of asbestos located at the eastern edge of the unit. SWMU 40 was used in the 1970s and early 1980s for the burial of paper, office trash, concrete, and rubber tires. The unit was not permitted as a solid waste landfill by the Commonwealth of Virginia. Operation ceased and the unit was closed with a clay cap and grass cover.

#### **SWMU 41B**

SWMU 41 is located in the southeastern portion of the RFAAP MMA. The unit consists of two non-contiguous disposal areas (SWMU 41A and SWMU 41B) for red water ash. Red water ash is a byproduct of combustion of TNT production wastewater. SWMU 41B is a 0.36-acre natural clay-lined landfill containing red water ash. From approximately 1967 to 1974 and again from 1983 to 1986, RFAAP manufactured TNT by the continuous-type process, which employed chemical recycling and resulted in a smaller quantity of more concentrated waste than older batch-type operations. In TNT manufacture, red colored wastewater, known as red water, is produced. Red water generated from continuous-type process TNT manufacturing was concentrated by evaporation and the residue burned in rotary kilns located in the former TNT manufacturing area. The ash produced from these kilns was disposed of in SWMU 41B from 1967 to 1971. Disposal ceased in 1971 and SWMU 41B was deactivated.

#### **SWMU 43**

SWMU 43 is a closed unlined sanitary landfill located immediately adjacent to the New River in the northeast section of the MMA. SWMU 43 consists of two adjacent approximately 1.5-acre cells divided by a central drainage ditch. Based on geophysics and aerial photography, the landfill extends east-west approximately 700 feet on either side of the drainage ditch. The north and south boundaries are the river bank and the paved road, respectively. The landfill has a north-south dimension of approximately 150 feet. The former trench-fill operation reportedly received at least 300 tons of paper and refuse over its active life. The landfill was reportedly operated from 1958 to the early 1970s.

#### **SWMU 45**

SWMU 45, the Inactive Sanitary Landfill, consists of a 3.4-acre area in the northwest section of the MMA. The New River is approximately 200 feet north-northwest of the unit. Historical records indicate the landfill was in operation from 1957 to 1961. Previous investigations determined that a variety of waste, including scrap metal, may have been disposed of in the landfill.

### **SWMUs 48 and 49**

SWMUs 48 and 49 are combined into one study area which is located in the southeastern portion of the Horse Shoe Area (HSA), east of the main bridge over the New River. The two SWMUs are adjacent, with SWMU 48 located approximately 200 ft northwest of SWMU 49. SWMU 48 is approximately 380 ft long by 120 ft wide; whereas, SWMU 49 is 75 ft long by 83 ft wide. The SWMUs are situated on a bluff approximately 120 ft above the New River. SWMU 48 is known as the Oily Water Burial Area and SWMU 49 is known as the Red Water Ash Burial No. 2; however, SWMUs 48 and 49 are combined into one study area because in previous reports their descriptive titles have been used interchangeably and because of their close proximity to each other. SWMUs 48 and 49 share unlined trenches where oily wastewater and red water ash were disposed starting around 1970.

### **SWMU 51 TNT Waste Neutralization Pits**

SWMU 51, the TNT Waste Neutralization Pits, consists of one trench, approximately 140 feet long, 23 feet wide, and 14 feet deep, located in the HSA. The trench has been filled to natural grade with soil and is covered by grass and weeds. A barbed wire fence surrounds SWMU 51.

During the production of TNT, an alkaline, red-colored aqueous waste is generated (red water). Reportedly, this waste stream is composed of TNT purification by-products, air pollution scrubber water, wash water from cleaning of production equipment and facilities and wash water from product wash down operations.

### **SWMU 54**

SWMU 54 is located within the easternmost portion of the HSA. SWMU 54 consists of two non-contiguous disposal areas; Area A is an approximate 0.58-acre triangular shaped area in the southern portion of SWMU 54 and Area B is an approximate 1-acre area in the northern portion of SWMU 54. SWMU 54 is currently undeveloped. The RFAAP installation security fence is located along the northern and eastern boundaries of SWMU 54. SWMU 54 was reportedly used as a disposal area in the late 1970s for ash from propellant burning activities located at the Waste Propellant Burning Grounds. The propellant ash consisted of a residue resulting from the burning of waste explosives, propellants, and laboratory waste.

### **SITE SCREENING AREAS 30, 72, 77 and 79**

Site Screening Area (SSA) 30, Asbestos Disposal Trench No. 1, and SSA 79, Asbestos Disposal Trench No. 2, are co-located in the HSA. SSA 72, the Oleum Plant Acidic Wastewater Sump, are located in the Oleum Plant area of RFAAP. SSA 77, the Garbage Incinerator (Building 7219), is located adjacent to shipping and receiving in the MMA.

- SSAs 30 and 79 were used for disposal of asbestos containing material from 1982 to 1987. The units received 250 to 500 pounds of double bagged asbestos containing material per day when asbestos removal activities were ongoing at RFAAP.
- SSA 72 operated from 1976 until 1987, when the Oleum Plant was rendered inactive due to TNT manufacturing processes ceasing at RFAAP in 1986.

- SSA 77 operated as a garbage incinerator from the 1940s until 1974, when it was shut down, rendered inactive, and equipment was removed. The unit was reconstructed and improved in 1953, and garbage incineration operations were reactivated. Incineration operations ceased at the reconstructed unit in 1974. SSA 77 is inactive with no plans to reactivate.

### **Army Reserved Small Arms Range (ARSAR)**

The ARSAR is a munitions response site investigated under the Military Munitions Response Program. The ARSAR is an approximately 7.6-acre area located along the southeastern boundary of the MMA. Most of the unit is a grass field with wooded areas located along the banks of Stroubles Creek, which is located along the southern portion of the unit. The ARSAR is divided into two areas consisting of the Firing Point/Berm Area and the Southeast Hillside Area. A target berm, which is approximately eight feet high and 270 feet long, is located along the southeastern portion of the Firing Point/Berm Area. The Southeast Hillside Area is a steep, rocky hillside thought to have been used as a backstop prior to the construction of the target berm. A fence is located at the top of the Southeast Hillside Area, which prevents access to the area. The ARSAR was used as a .30-caliber small arms firing range from approximately 1941 to 1968. The former range is now a grass field surrounded by a fence that is occasionally used as a helicopter landing pad and as a baseball field.

### **Former Gun and Mortar Range**

The Former Gun and Trench Mortar Area (a.k.a., Former Gun and Mortar Range) consist of two adjacent areas located within the HSA. The area is located within the current Nitroglycerin 2 (still active) manufacture area and within the Continuous Automated Multi-Base Line (CAMBL) area (inactive). The Gun Range Area occupies approximately 26 acres and the Trench Mortar Range occupies approximately 87 acres. The Former Gun and Mortar Range is presently regulated under the Military Munitions Response Program (MMRP) which generally follows CERCLA. RCRA is the primary driver for addressing impacts to the Former Gun and Mortar Range; however, RCRA does not provide special provisions for dealing with explosive safety. Investigation of the Former Gun and Mortar Range is on-going.

### **Purpose of the Permitting Process**

One of the purposes of the permitting process is to afford the DEQ, interested citizens, and other governmental agencies the opportunity to evaluate the proposed draft permit and the ability of the Permittee to comply with the applicable hazardous waste management requirements of the Permit and the VHWMR. The draft permit sets forth in one document all the requirements which the Permittee must comply with during the ten (10) year duration of the permit. These requirements include, but are not limited to, the regulations as set forth in the VHWMR.

### **Draft Permit**

The draft permit is divided into two main parts, Modules I and II, and a list of three permit attachments. Attachments A, B, and C are incorporated into the permit. The two main parts of the permit are outlined below. The column entitled "Regulation," identifies the regulatory authority for the permit conditions in Parts I and II of the Permit. The VHWMR, 9 VAC 20-60, has incorporated by reference the federal regulations under the Resource Conservation and

Recovery Act (RCRA). Applicable citations of the RCRA regulations are provided below, as applicable.

<b><u>Permit Organization</u></b>		
<b><u>Part</u></b>	<b><u>Topic</u></b>	<b><u>Regulation</u></b>
Module I	Standard Conditions	40 CFR § 270.30 and 40 CFR § 270.32
Module II	Site-Wide Corrective Action	40 CFR § 264.101, and 40 CFR § 270.14

Module I of the permit contain conditions which generally apply to all hazardous waste management facilities. Module II of the permit outlines the corrective action procedures required by 40 CFR § 264.101.

The following three permit attachments are incorporated into the proposed draft permit by reference.

Some of the attachment documents contain excerpts from the Permittee's hazardous waste permit application. Specific language excerpted from the permit application has been modified, as deemed necessary, so to be acceptable to the Department.

### **List of Permit Attachments**

- Attachment A Facility Map of RCRA Corrective Action Units – Figure 1 Summary of Corrective Action Units Final Remedies – Table 1
- Attachment B Facility Background, Corrective Action Unit Descriptions and Environmental Descriptions
- Attachment C Remedial Clean-Up Goals and Exit Strategy

Financial assurance was not required as the facility is owned by the U.S Army and is exempt from the financial assurance requirements under 40 CFR 264.140(c).

### **Public Notice of Proposed Permit Actions**

The purpose of public notice of a proposed permit action is to provide the DEQ, interested citizens, other governmental agencies, etc., the opportunity to evaluate and comment upon the draft permit action proposed for the subject facility. Permits are drafted to help assure facility compliance with the final RCRA Permit and the applicable requirements of the Hazardous Waste Management Regulations (VHWMR), 9 VAC 20-60.



Permit Fact Sheet  
Radford Army Ammunition Plant – Radford, VA

DEQ Office of Waste Permitting and Compliance

Contact: Ashby Scott  
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\* Every work day by appointment

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125 Sheltman Street  
Christiansburg, VA 24073  
Phone: (540) 382-6965

\* During normal hours of operation

**Procedures for Reaching a Final Permit Decision:**

When making a final decision regarding this proposed permit action, the DEQ will consider all written comments received during the 66 day public comment period, and oral and written comments received during the public hearing, along with the requirements of the Virginia Hazardous Waste Management Regulations.

When the DEQ makes a final decision to either issue or deny the permit, final notice will be given to the applicant and each person who has submitted comments or requested notice of the final decision. The final notice will include a written response from the DEQ to each comment submitted and will indicate any changes in the draft permit action which may have been made in response to the comments. The proposed permit action will become effective 30 days after the final permit decision notice unless a change to the draft permit is requested pursuant to the VHWMR, 9 VAC 20-60-80, and the Virginia Administrative Process Act, § 2.2 4000, et seq., of the Code of Virginia or no comments requested a change in the draft permit, in which case the permit shall become effective immediately upon issuance.

### **Summary of the Permit Conditions**

This section of the fact sheet provides a summary of the conditions in this draft permit.

#### **Module I – Standard Conditions**

Module I of the permit sets forth the standard conditions that are applicable to all hazardous waste management facilities.

<b><u>Permit Condition</u></b>	<b><u>Subject</u></b>	<b><u>Requirement</u></b>
I.A	Effect of Permit	40 CFR § 270.4, 40 CFR § 270.30(g)(8)
I.B	Permit Actions	40 CFR § 124.5, 40 CFR § 270.30(f) 40 CFR § 270.41 40 CFR § 270.42 40 CFR § 270.43
I.C	Severability	40 CFR § 124.16(a)
I.D	Duties and Requirements	40 CFR § 270.30
I.E	Monitoring and Records	40 CFR § 270.30(j)
I.G	Transfer of Permit	40 CFR § 270.40
I.H	Permit Expiration and Continuation	40 CFR § 270.50
I.I	Reports, Notifications, and Submissions to the Department	40 CFR § 270.11
I.J	Documents to be Maintained at the Facility	40 CFR § 264.73

#### **Module II – Site-Wide Corrective Action**

The DEQ has evaluated the need for investigations or clean up of past releases at the RFAAP facility. This evaluation is a routine part of all EPA permits issued since 1984 in compliance with 40 CFR § 264.101.