



**Bureau of Environmental Remediation
Federal Facilities Unit**
1000 SW Jackson, Suite 410
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**STATEMENT OF BASIS
October 3, 2022**

Former Sunflower Army Ammunition Plant

KDHE Project Code #: C4-046-71047

EPA ID # KS3213820878

Solid Waste Management Unit 44 – Tank T784 Site, SFAAP

DeSoto, Johnson County Kansas

Facility/Unit Type: SFAAP SWMU 44 nitroguanidine (NQ) production area
Contaminants: Arsenic and Total Chromium
Affected Media: Surface and Subsurface
Proposed Remedy: No Further Action for soils. Site-specific groundwater will be addressed under the Groundwater Operable Unit 1 study.

INTRODUCTION

This Statement of Basis (SB) describes the proposed corrective measures (remedy) for Solid Waste Management Unit, SWMU 44 Tank T784 Site, at the Former Sunflower Army Ammunition Plant (SFAAP) in DeSoto, Kansas. The Kansas Department of Health and Environment's (KDHE) authority for requiring corrective action at SFAAP is based upon the KDHE Bureau of Remediation (BER) SFAAP Consent Order No. 05-E-0111 and Kansas Hazardous Waste Statutes: K.S.A. 65-3430 et seq., K.S.A. 65-3452a et seq., and K.A.R. 28-31-4 et seq. Environmental response actions at SFAAP comply with the Defense Environmental Restoration Program (10 U.S.C. §2701). The SFAAP is not on the National Priorities List.

The KDHE is issuing this Statement of Basis as part of its public participation responsibilities under the Resource Conservation Resource Act (RCRA). This document highlights the information that is presented in more detail in the facility Administrative Record (AR). The AR information includes: *Final RCRA Facility Investigation Report* (AECOM, 2020), and the Shaw Environmental, Inc. (Shaw), 2005 RFI Addendum and other documents. The public is encouraged to review these documents for a more complete understanding of the environmental issues at SWMU 44 and the corrective actions that are planned. The AR locations are noted at the end of this document.

PROPOSED REMEDY

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The proposed remedy for SWMU 44 is No Further Action (NFA) for soils. Based on data collected for the RFI Addendum (Shaw 2005), it was concluded that historical operations of Tank T784 resulted in minimal impacts to surrounding soils. NFA means that all contaminants of concern (COCs) that may impact human health, or the environment were removed as indicated by post-confirmation sampling. Based on data collected for the RFI Addendum (Shaw 2005), it was concluded that historical operations of Tank T784 resulted in minimal impacts to surrounding soils

Only one of 141 subsurface soil samples exceeded the residential target media cleanup level (TMCL) for arsenic (18.9 mg/kg) at 30.2 mg/kg. Given the lack of exceedances along the 3 mile-long underground transfer line, delineation was not pursued (AECOM 2020). Two of the 141 sample locations had total chromium concentrations (34.0 mg/kg and 45.4 mg/kg) that exceeded the residential TMCL (33.6 mg/kg). Following speciation of the chromium samples, concentrations were found to be below the residential TMCL. In the approved Final RFI (AECOM 2020), KDHE notes that a single exceedance of a TMCL does not necessarily warrant remediation.

Groundwater at the site will be evaluated for sitewide COCs during the Army's site-wide assessment of groundwater operable unit, (GWOU-1). GWOU means a discrete area consisting of a single to many SWMUs and/or AOCs with actual or potential for releases to groundwater, grouped together for purposes of assessment and cleanup. The primary criteria for placement of sites with actual or potential groundwater releases into an operable unit include geographic proximity, similarity of waste characteristics and site type, and the possibility for economies of scale.

FACILITY BACKGROUND

The former SFAAP is located near DeSoto, Kansas, in the northwest corner of Johnson County. It is approximately 30 miles southwest of Kansas City, Kansas, and 16 miles east of Lawrence, Kansas. SFAAP includes approximately 9,065 acres and is surrounded primarily by agricultural land. It is bounded on the east by Spoon and Kill Creeks and on the west by Captain Creek (Figure 1). The plant consisted of production facilities, administrative and storage facilities, powerhouses, landfills, lagoons, ditches, burning grounds, sumps, projectile ranges, and waste treatment facilities. Most of the assets of the plant are no longer in active use. The Site produced nitrocellulose, nitroglycerin, and a variety of propellants from 1942-1971, acids, and nitroguanidine from 1971-1992. The plant was declared excess in 1998 by the Army and sold to Sunflower Redevelopment LLC in 2005. The site is composed of 70 Solid Waste Management Units (SWMUs) where a release of hazardous waste was identified and 27 Areas of Concern (AOCs) where hazardous waste or constituents have been identified but are not linked to a specific solid waste management practice.

SUMMARY OF SITE SWMU 44

SWMU 44, Tank T784 Site, located in the northwest portion of the former SFAAP, encompasses approximately one acre within the former nitroguanidine (NQ) production area. It includes Tank T784, out buildings, piping, and pump equipment. This site was used from 1981 to 1992 to store National Pollutant Discharge Elimination System (NPDES) permitted wastewater prior to discharge. The wastewater effluent from Tank T784 discharged through an approximately 3-mile underground transfer line which follows the north plant boundary in an easterly direction before turning directly north at Sunflower Road towards the former River Water Treatment Plant (RWTP) Lagoons (SWMU 2) (Figure 1).

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SWMU 44 was part of the NQ production area and included an aboveground, circular, metal, wastewater collection tank (Tank T784) that held cooling tower blow down, NQ crystallizer condensate, guanidine nitrate (GN) evaporator condensate, and noncontact cooling water. The capacity of Tank T784 was 100,000 gallons. The pipes underground transfer line discharged wastewater effluent from Tank T784 into the RWTP Lagoons (SWMU 2). SWMU 2 was the NPDES permitted discharge point for the NQ wastewater.

Arsenic and total chromium were the contaminants of concern (COCs) at this SWMU based on the surface and subsurface sampling of the soil during the initial RFI (Shaw, 2005) and the Final RFI (AECOM, 2020).

SUMMARY OF FACILITY RISKS

SWMU 44 (Tank T784) stored National Pollutant Discharge Elimination System (NPDES) permitted wastewater prior to discharge to the RWTP Lagoons (SWMU 2) from 1981 to 1992. Releases occurred as a result of breaks in the line to the SWMU 2 lagoons. Tank overflows and spills occurred between 1988 and 1991 (Law, 1997). The material released included NQ wastewater with contaminant levels below NPDES permitted discharge limits.

Shaw Environmental, Inc. (Shaw, 2005) initiated a site-specific RFI at SWMU 44 in August 2003. The RFI characterized groundwater, surface and subsurface soils at the Tank T784 area. Three groundwater samples and 15 surface and subsurface soil samples were collected. Samples were collected at biased locations around the perimeter of Tank T784, below the overhead transfer lines, and at various locations identified by KDHE. Soil and groundwater samples were analyzed for Target Analyte List metals, hexavalent chromium, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), explosives, nitroglycerine, NQ, GN, polychlorinated biphenyls (PCBs), fluoride, cyanide, sulfates, nitrates, nitrites, ammonia-nitrate, and herbicides.

Laboratory analysis of surface soil samples identified metals, nitrate, ammonia, sulfate, PCBs, herbicides, and SVOCs. Thirteen metals were detected at concentrations exceeding their statistically estimated background concentrations (Law 1996). Laboratory analysis of subsurface soil samples identified metals, ammonia, nitrate, sulfate, SVOCs, and VOCs. Four metals were detected at concentrations exceeding their statistically estimated background concentrations (Law 1996). Laboratory analysis of three groundwater samples identified metals, nitrate, ammonia, sulfate, and one SVOC. Eight metals were detected at concentrations exceeding their statistically estimated background concentrations (Law 1996).

The 2019 RFI field activities were completed at SWMU 44 to determine whether historical contaminants impacted subsurface soil. To prepare for the subsurface soil sample collection, the field team completed potholing to daylight the 3 mile-long underground transfer line, confirmed lateral position and obtained vertical line depth. A total of 141 subsurface soil samples were collected from May 28 through October 2, 2019 and analyzed for RCRA metals, manganese, nitrate, ammonia, GN, and NQ. Additionally, two subsurface soil samples were collected for chromium VI analysis.

Arsenic was above the residential TMCL (18.9 mg/kg) at one subsurface soil sample location (30.2 mg/kg). The arsenic concentration of 30.2 mg/kg falls between the residential TMCL of 18.9 mg/kg and the non-residential TMCL of 63.2 mg/kg. Based on the 2019 RFI data, only one of 141 subsurface soil samples exceeded the residential TMCL of 18.9 mg/kg. Delineation was not pursued given the

lack of exceedances along the underground transfer line. Total chromium was above the residential TMCL (33.6 mg/kg) at two subsurface soil sample locations (45.4 mg/kg and 34.0 mg/kg). Therefore, two chromium VI samples were collected at the same locations and intervals as the previous samples. The chromium VI concentrations were below the residential TMCL (33.6 mg/kg) at 1.3 mg/kg and 0.38 mg/kg.

No wells were installed at SWMU 44 during the 2019 RFI. Groundwater will be further evaluated during the Army's assessment of site-wide groundwater in operational unit GWOU-1

RISK ASSESSMENT

The Army conducted a streamlined health risk evaluation by comparing RFI data to the approved TMCLs for the site. KDHE believes that proper employment of the KDHE (2015) RSK Manual values result in risk-based remediation that is consistent with federally promulgated standards, including the Safe Drinking Water Act, 42 U.S.C. §300f – 300j-26, and is protective of human health as required by Resource Conservation and Recovery Act, 42 U.S.C. §6901 et seq., including the Hazardous and Solid Waste Amendments (HSWA) and 40 CFR Part 264.101. KDHE Tier 2 risk-based cleanup goals represent concentrations at which the contaminants pose an acceptable human health risk to receptors, including sensitive groups (e.g., children or the elderly), over a lifetime.

Cleanup goals were developed for two general categories of receptors, residents and non-residents, according to the appropriate land-use designation, exposure frequency, and exposure duration. According to the Johnson County Rural Comprehensive Plan Resolution No. 079-98. *Conceptual Land Use Plan, Sunflower Army Ammunition Plant*. July 23, 1998 the area encompassing SWMU 44 is proposed to be categorized as a "Research and Technical Center." Based on this land-use, the potential current and future receptors include:

- Future: Construction and excavation workers.

The RFI identified arsenic and total chromium as COCs at SWMU 44 based on exceedances of the residential soil TMCLs, therefore, the exposure pathway for soil was considered during the assessment. Soil: Evaluated exposure pathways include incidental ingestion, inhalation of airborne particulates (dusts), and dermal contact (organic compounds only). Based on comparison of the RFI results to TMCLs, which identified minimal exceedances in one sample out of 141, subsurface soil at SWMU 44 does not pose a potentially unacceptable health risk.

Lead was not identified in the one groundwater sample collected at the site. Additional evaluation of groundwater in the area will occur when work on GWOU-1 is done.

SUMMARY OF ALTERNATIVES

No Further Action for soils (surface and subsurface) because no contamination was identified above the site-specific TMCLs for the site. No further actions will be taken to evaluate or reduce contaminant mass, address potential exposure pathways, or reduce the potential for contaminant migration. Evaluation of groundwater in the area will occur when work on GWOU-1 is done. Site-specific groundwater at the site showed COCs below/above the site-specific TMCLs. Groundwater will be included in the NFA remedy.

Groundwater will also be evaluated for area wide contamination when the Army performs the groundwater assessment of groundwater operable unit (GWOU-1).

EVALUATION OF THE PROPOSED REMEDY AND ALTERNATIVES

The KDHE has determined that NFA for soil is the appropriate remedy for SWMU 44. 2019 RFI sampling results show no contamination was identified above the site-specific TMCLs for the site. This proposal is based upon KDHE's review of all available historical documentation regarding the Site.

PUBLIC PARTICIPATION

KDHE solicits input from the community during the RCRA decision-making process to ensure that the community concerns are considered in approving the recommended remedial alternative for SWMU 44. The public is also invited to provide comments on remedial alternatives not addressed in investigation reports. KDHE has set a public comment period from October 3, 2022 to November 3, 2022 to encourage public participation in the remedy selection process. A public meeting is not scheduled at this time. If a public meeting is requested in writing with a statement of issues to be raised, the KDHE may conduct a public meeting virtually or in person to receive both oral and written comments.

ADMINISTRATIVE RECORD

The administrative record (AR) is available at the following locations:

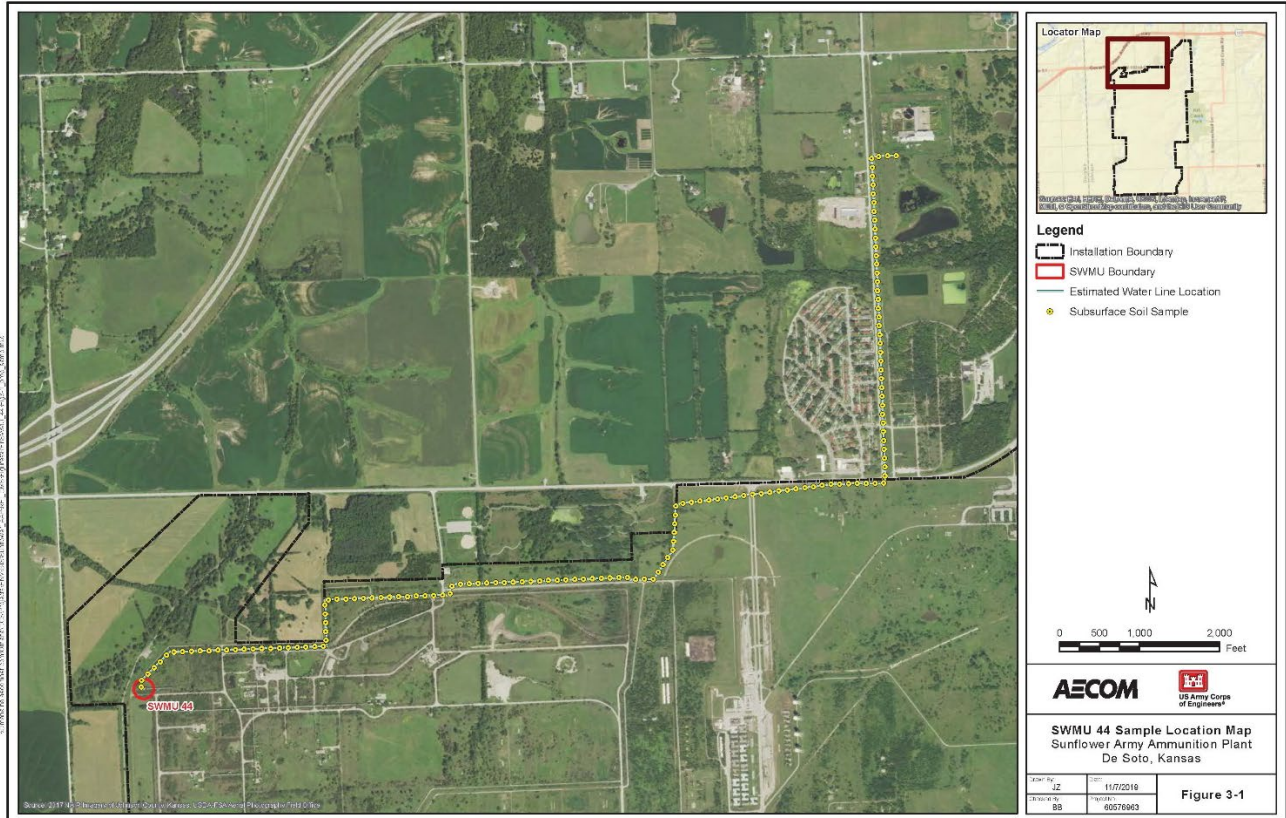
Name/Address	Contact Information	Hours
KDHE Bureau of Environmental Remediation, Federal Facilities Unit 1000 SW Jackson Street, Suite 410 Topeka, Kansas 66612	Phone: (785) 296-1673 (main line) or 785-291- 3066 (Kyle Skeese, Project Manager at Sunflower site)	Monday - Friday: 8 a.m. - 12 p.m. and 1 p.m. - 4 p.m.

After the public comment period, KDHE will summarize and respond to all comments received in a Response to Comments document. The Response to Comments document will be incorporated into the AR and a copy will be sent to individuals who provided comments during the public comment period. To send written comments, request a public meeting, or obtain further information, please contact Kyle Skeese, Project Manager at SFAAP, at Kyle.Skeese@ks.gov or by phone at 785-291-3066.

In addition, KDHE has established a webpage dedicated to the Site, which is available online during the comment period at: <https://www.kdhe.ks.gov/716/Sunflower-Army-Ammunition-Plant>.

FIGURES

Figure 1: Site location of SWMU 44, showing underground transfer line and location of subsurface soil samples.



REFERENCES

AECOM Technical Services, Inc., 2020. *Final RCRA Facility Investigation Report (RFI), SWMU 44, Transformer Storage Warehouse Site, Former Sunflower Army Ammunition Plant, De Soto, Kansas*. June.

Johnson County Rural Comprehensive Plan Resolution No. 079-98. *Conceptual Land Use Plan, Sunflower Army Ammunition Plant*. July 23, 1998.

KDHE, 2015. *Risk-Based Standards for Kansas (RSK Manual)*, September.

Shaw Environmental, Inc., 2005. *RFI Report Addendum, SWMU 44, Tank T784 Site, Former Sunflower Army Ammunition Plant, De Soto, Kansas*. June.