

FINAL PLAN OF REMEDIAL ACTION



FIRST STATE MILITARY ACADEMY SITE

*355 West Duck Creek Road
Clayton, Delaware*

*June 2015
DNREC Project No. DE-1565*

This Final Plan of Remedial Action (Final Plan) presents clean-up actions required by the Department of Natural Resources and Environmental Control (DNREC) to address environmental contamination at the First State Military Academy Site.

DNREC issued public notice of the Proposed Plan of Remedial Action (Proposed Plan) for the First State Military Academy Site on May 24, 2015 and opened a 20-day public comment period. The Proposed Plan is attached. There were no comments from the public; therefore, the Proposed Plan is adopted as the Final Plan.

Approval:

This Final Plan meets the requirements of the Hazardous Substance Cleanup Act.



Timothy T. Ratsep, Program Administrator
Site Investigation and Restoration Section

June 15, 2015

Date



PROPOSED PLAN OF REMEDIAL ACTION

**First State Military Academy Site
Clayton, Delaware
DNREC Project No. DE-1565**



May 2015

**Delaware Department of Natural Resources and Environmental Control
Division of Waste and Hazardous Substances
Site Investigation & Restoration Section
391 Lukens Drive
New Castle, Delaware 19720**

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PROPOSED PLAN OF REMEDIAL ACTION

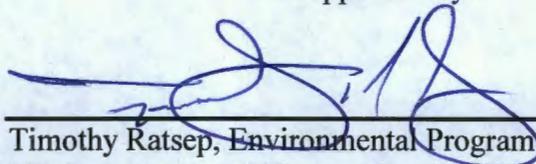
First State Military Academy Site
Clayton, Delaware
DNREC Project No. DE-1565



Approval:

This Proposed Plan meets the requirements of the Hazardous Substance Cleanup Act.

Approved by:



Timothy Ratsep, Environmental Program Administrator
Site Investigation & Restoration Section

May 21, 2015

Date



What is the Proposed Plan of Remedial Action?

The Proposed Plan of Remedial Action (Proposed Plan) summarizes the clean-up (remedial) actions that are being proposed to address contamination found at the Site for public comment. A legal notice is published in the newspaper for a 20-day comment period. DNREC considers and addresses all public comments received and publishes a Final Plan of Remedial Action (Final Plan) for the Site.

What is the First State Military Academy Site?

The First State Military Academy Site is located at 355 West Duck Creek Road in Clayton, Delaware, and consists of one tax parcel (ID 49317 on Map No. 3-04-01806-01-6500-00001), totaling approximately 36 acres (Figure 1). The nearest intersection to the Site is Duck Creek Road and Clayton Avenue. The Site is zoned residential (Figure 2) and most recently operated as a charter school, but has been unused since 2010. The school-related portion of the Site consists of seven buildings with asphalt paved roads leading to each building. Several of the Site buildings are undergoing renovations for the planned future military academy, which is scheduled to begin operating in fall of 2015. The ground cover in this (school-related) area is grass and sporadic trees and shrubs. The northwestern, northern, and northeastern portions of the Site are currently (and historically) used as agricultural land with continuous farmland extended in those directions and bordered by Duck Creek Road. First State Military Academy entered into a Brownfield Development Agreement (BDA) with DNREC in February 2014.

This proposed plan addresses the soil and groundwater media at the Site.

What happened at the First State Military Academy Site?

The Site is believed to have operated as "Saint Joseph's Industrial School" from 1896-1972 (much of the Site structures were later damaged by fire) and as a prayer ground from 1973-2002 when the Site was purchased by a community group to form a charter school. The charter school, Providence Creek Academy, is believed to have operated at the Site until 2010 and the Site has remained unused to present day. The schools are known to have utilized multiple heating oil and gasoline underground storage tanks (USTs). One of the USTs was found to have experienced a limited release of heating oil to the subsurface soil and local groundwater during its historical usage. Very low concentrations of select pesticide constituents were found in Site groundwater. The presence of these constituents is likely attributable to the historical use of the Site and surrounding area as agricultural land.

What is the environmental problem at the First State Military Academy Site?

A Brownfield Investigation (BFI) was completed at the Site during 2014. The results of the BFI, in conjunction with data obtained during the completion of interim remedial actions, as described in the section below, indicate that the concentrations of contaminants of concern (COCs) in Site soil allow for unrestricted use of the soil. A few polycyclic aromatic hydrocarbons (PAH), metals, and pesticide constituents were detected in surface soils at low concentrations that exceeded DNREC's Site Investigation Restoration Section (SIRS) Screening Levels, but human health risk assessment (HHRA) demonstrates that these COC concentrations pose acceptable incremental risk to all current and future exposure pathways and populations.

Low level concentrations of volatile organic compound (VOC), semi-volatile organic compound (SVOC), pesticide, polychlorinated biphenyl (PCB) and inorganic substances were reported in shallow groundwater at levels that exceeded DNREC's SIRS Screening Levels. These concentration may pose an unacceptable risk, primarily due to the presence of select pesticide and inorganic COCs, to potential future users of the groundwater for unrestricted (e.g., consumptive) purposes. The Site is serviced by public water supply; therefore, there is currently no complete exposure pathway to the Site's shallow groundwater, nor is this expected to change in the future.

Evidence of a small release from a heating oil UST was observed to have affected subsurface soil and shallow groundwater in the vicinity of that UST. During interim actions that occurred as part of the BFI, all USTs have been properly removed/abandoned and closed in accordance with DNREC's Tank Management Section (TMS) regulations. A single location of residual impacted soil at an inaccessible subsurface location, sample Tank1-B3, at the northeast corner of the Admin Building, contains total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO) at a concentration that exceeded DNREC's SIRS Screening Levels. This location will be addressed in a Contaminated Material Management Plan for the Site.

What clean-up actions have been taken at the First State Military Academy Site?

Two heating oil USTs and one other UST, which most likely contained gasoline, were closed at the Site. Two of the three USTs were removed from the ground and one UST was abandoned in place (due to the proximity of a natural gas line). Oily water in the USTs was pumped out and transported offsite for proper disposal. The two removed tanks were also properly disposed offsite. All USTs have been properly removed/abandoned and closed in accordance with DNREC's TMS regulations. DNREC TMS issued a No Further Action letter for the Site USTs dated March 30, 2015.

Evidence was observed of a small heating oil release to the subslab soil beneath the basement concrete floor slab of one of the Site buildings, the Art Studio. An interim action was implemented to investigate, delineate, and remove petroleum impacted soils from the subslab to achieve unrestricted Site use for the identified area of concern. Eight 55-gallon drums of soil

were excavated from beneath the Art Studio basement slab and transported offsite for proper disposal. Subslab soil post-excavation results were all below DNREC's SIRS Screening Levels. Based on the post-excavation results, petroleum hydrocarbons in subslab soil are not considered a concern and no further remedial actions are required to address subslab soil at the Site. The excavation was backfilled and the concrete floor slab was replaced.

An interim action also occurred to remove through excavation and offsite disposal PAH impacted shallow soils in an attempt to achieve unrestricted Site use for an identified area of concern in front of the Art Studio. A stand-alone Human Health Risk Assessment (HHRA) for PAH constituents was conducted for the shallow soils around sample location SSIB-5S, (collected during the BFI), showed potentially unacceptable risk to a hypothetical future resident (the most conservative exposure population). This unacceptable risk was primarily due to the concentration of benzo(a)pyrene reported in the original sampling result (April 23, 2014) at location SSIB-5S. The original (PAH) sampling results at this location (SSIB-5S) appeared anomalous and not representative of actual soil conditions in the area; therefore a confirmation/delineation sampling event was completed around location SSIB-5S. The reported PAH concentrations in the confirmation/delineation samples (August 5, 2014) were lower than the original April 23 sampling results. At DNREC's request an interim action occurred to excavate a small area of shallow soil around location SSIB-5S. Analysis of the post-excavation sampling results demonstrated acceptable soil concentrations of PAHs for the unrestricted use of the area.

What does the owner want to do at the First State Military Academy Site?

First State Military Academy plans to renovate and redevelop the Site for use as a military charter high school, consistent with the historical use of the Site as a school and applicable zoning classification.

What additional clean-up actions are needed at the First State Military Academy Site?

DNREC proposes the following remedial actions for the Site, which needs to be completed before a Certificate of Completion of Remedy (COCR) can be issued.

1. A proposed Environmental Covenant must be submitted to DNREC for approval within 60 days of the issuance of the approved Long Term Stewardship (LTS) Plan.
2. An Environmental Covenant, consistent with Delaware's Uniform Environmental Covenants Act (Title 7, Del. Code Chapter 79, Subchapter II) (UECA), must be recorded in the office of the Kent County Recorder of Deeds within 60 days of the issuance of the Long Term Stewardship Plan. The Environmental Covenant must include the following activity and/or use restrictions:

[a.] Limitation of Groundwater Withdrawal. No groundwater wells shall be installed, and no groundwater shall be withdrawn from any well,

on the Property without the prior written approval of DNREC-SIRS and DNREC Division of Water;

[b.] Compliance with the Long Term Stewardship Plan. All work required by the Long Term Stewardship Plan (LTS Plan) must be performed to DNREC's satisfaction in accordance with the Plan; and;

[c.] Compliance with the Contaminated Materials Management Plan. All work required by the Contaminated Materials Management Plan must be performed to DNREC's satisfaction in accordance with the Plan.

3. A Contaminated Materials Management Plan (CMMP) must be submitted to DNREC within 60 days of the issuance of the Final Plan of Remedial Action. The CMMP will provide guidance to enable construction workers to safely handle any potential contaminated soil and groundwater at the Site.
4. The CMMP will be implemented upon its approval by DNREC.
5. A Long-Term Stewardship Plan shall be submitted to DNREC for approval.
6. The LTS Plan must be implemented within 60 days of its approval by DNREC.
7. A Remedial Action Completion Report must be submitted to DNREC within 60 days of the completion of the remedial actions required in this Proposed Plan.
8. A request for a Certification of Completion of Remedy (COCR) must be submitted to DNREC within 60 days of approval of the Remedial Action Completion Report.

What are the long term plans for the Site after the cleanup?

The Site will be renovated and redeveloped for use as a military charter high school, consistent with the historical use of the Site as a school and applicable zoning classification. An Environmental Covenant restricting the use of groundwater on the property will be implemented. A Long Term Stewardship (LTS) Plan that includes a Contaminated Materials Management Plan (CMMP) for the Site will be developed to address the residual contamination at soil sampling location Tank1-B3, as well as Site-wide impacted shallow groundwater. The LTS Plan will also acknowledge the presence of asbestos containing material (ACM) and lead-based paint (LBP) that require appropriate management at the Site. The LTS Plan and CMMP will be referenced in the Environmental Covenant created for the Site. DNREC plans to issue a Certificate of Completion of Remedy (COCR) for the Site after the implementation of the Uniform Environmental Covenant at the Site.

How can I find additional information or comment on the Proposed Plan?

The complete file on the Site including the Brownfield Investigation Report, Phase I Environmental Assessment Report, and Underground Storage Tank Closure Report are available

at the DNREC office, 391 Lukens Drive in New Castle, 19720. Most documents are also found on:

<http://www.nav.dnrec.delaware.gov/DEN3/>

The 20-day public comment period begins on May 24, 2015 and ends at close of business (4:30 pm) on June 15, 2015. Please send written comments to the DNREC office at 391 Lukens Drive, New Castle, DE 19720 to Stephanie Gordon, Project Officer or Robert Newsome, Public Information Officer.

Figure 1: Regional Topographic Map

Figure 2: Site Vicinity Map

Figure 3: Site Base Map

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Legend  Site Location		 Environmental Alliance, Inc. 3341 Limestone Road, Wilmington, DE 19808 Phone: (302) 234-4400 - Fax: (302) 234-1333		First State Military Academy DE #1565 355 West Duck Creek Road Clayton, Delaware 19938	
 Sources: 7.5 Minute USGS Topographic Quad				Regional Topographic Map	
DESIGNED BY: D IM	DRAWN BY: BQJ	UPDATED BY:	FIGURE NO.: 1		
APPROVED BY:	PROJECT NO.: 378	DATE: 2/12/2015			

Figure 1: Regional Topographic Map



Figure 3: Site Base Map

Glossary of Terms Used in this Proposed Plan

Area of Concern (AOC)	A discrete section of the Site representing the local bounds of contamination in soil or ground water.
Brownfield Development Agreement (BDA)	This legal agreement is between a potential developer of a Delaware-certified Brownfields Site and the DNREC. The developer agrees to investigate and cleanup a Brownfields property under the oversight of the Department in exchange for liability protection.
Brownfield Investigation (BFI)	Thorough environmental study of a site which includes 1) sampling of site environmental media and/or wastes on the property and 2) conducting a preliminary risk assessment using the data collected to determine the risk posed to human health and the environment.
Certified Brownfield	A Brownfield that DNREC has determined is eligible for partial funding through the Delaware Brownfields Program
Certification of Completion of Remedy (COCR)	A formal determination by the Secretary of DNREC that remedial activities required by the Final Plan of Remedial Action have been completed.
Contaminant of Concern (COC)	Potentially harmful substances at concentrations above acceptable levels.
Contaminated Materials Management Plan (CMMP)	A written plan specifying how potentially contaminated material at a Site will be sampled, evaluated, staged, transported and disposed of properly.
Exposure	Contact with a substance through inhalation, ingestion, or direct contact with the skin. Exposure may be short term (acute) or long term (chronic).
Final Plan of Remedial Action	DNREC's adopted plan for cleaning up a hazardous site.
Hazardous Substance Cleanup Act (HSCA)	Delaware Code Title 7, Chapter 91. The law that enables DNREC to identify parties responsible for hazardous substances releases and requires cleanup with oversight of the Department.
Human Health Risk Assessment (HHRA)	An assessment done to characterize the potential human health risk associated with exposure* to site related chemicals.
Poly chlorinated biphenyls (PCBs)	A synthetic, carcinogenic chemical formerly used in a wide variety of industrial applications but banned from most uses by the US EPA in 1979.
Risk	Likelihood or probability of injury, disease, or death.
SIRS	Site Investigation Restoration Section of DNREC, which oversees cleanup of sites that were contaminated as a result of past use, from dry cleaners to chemical companies