

FINAL PLAN OF REMEDIAL ACTION



DMA Expansion Site Operable Unit-1 (OU-1)

DMA Expansion Site OU-1
Wilmington, DE

January 25, 2011
DNREC Project No. 1484

This Final Plan of Remedial Action (Final Plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) determination that DMA Expansion OU-1 site was contaminated with polycyclic aromatic hydrocarbons (PAHs) and metals and a remedy is required.

DNREC issued public notice of the Proposed Plan for the Site on December 26, 2010 and opened a 20-day public comment period, which ended on January 16, 2011. The Proposed Plan required:

- Covering the surface with a cap that may consist of one foot of DNREC-approved fill material over a marker fabric and asphalt and/or concrete depending on the final design
- All construction and redevelopment work will be performed in accordance with a DNREC-approved Contaminated Material and Water Management Work Plan (CMWMWP), and the Site Specific Health and Safety Plan (HASP). Property Owner shall notify DNREC-SIRB prior to excavation or moving any of the on-site soil
- Placement of an Environmental Covenant. The Environmental Covenant will prohibit land disturbing activities without DNREC's prior written approval except in landscaping areas, and prohibit the installation of wells and use of any groundwater at the Site.
- Placement of a Long Term Stewardship Plan with annual inspections and will address any additional remedial actions that may become necessary based on results of the inspections. The Plan will be completed within ninety (90) days following completion of the redevelopment.
- Establish a Groundwater Management Zone (GMZ) preventing the use of groundwater without DNREC's written approval.

The Proposed Plan also includes the location of additional information found on the DNREC web page and in the DNREC office at Lukens Drive in New Castle. There were no comments or questions from the public regarding the Proposed Plan. Therefore, the Proposed Plan was adopted as the Final Plan (see attached).

Approval:

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


Kathleen Stiller, Program Manager II
Division of Waste and Hazardous Substances



PROPOSED PLAN OF REMEDIAL ACTION

DMA Expansion Site Operable Unit - 1
Wilmington, Delaware
DNREC Project No. DE-1484



December 2010

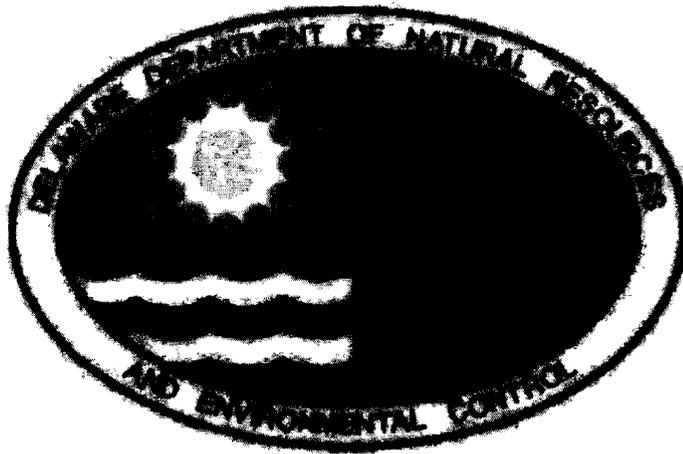
Delaware Department of Natural Resources and Environmental Control
Division of Waste and Hazardous Substances
Site Investigation & Restoration Branch
391 Lukens Drive
New Castle, Delaware 19720

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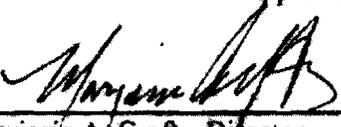
PROPOSED PLAN OF REMEDIAL ACTION

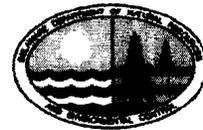
DMA Expansion Site Operable Unit - 1
Wilmington, Delaware
DNREC Project No. DE-1484



Approval:

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

Approved by:

Marjorie A. Crofts, Director Division of Waste and Hazardous Substances
12.21.10
Date



What is the DMA Expansion Site Operable Unit – 1 (OU-1)?

The site is a Delaware-certified Brownfield (DE-1484) located at 0 Middleboro Road in Wilmington, Delaware (Figure 1). The vacant property is owned by the Delaware Military Academy (DMA) and is currently covered with soil, gravel and grass. The DMA plans to redevelop the site into athletic fields and a parking area.

Tax Parcel Number: 07-043.30-178

Address: 0 Middleboro Road

Nearest major intersection: DuPont Street and Middleboro Road

Area: 3.44-acres

Surrounding Property: Surrounding land use is commercial and residential

Zoning: I-UDC-Industrial

Site Utilities: There are currently no utilities on the Site

Surface water: The Christina River is 200 feet south of the site

Topography: The site is substantially sloped upward from the south portion of the property towards the Delaware Military Academy on Middleboro Road

Groundwater: The groundwater flows south, towards the Christina River

What happened at the DMA Expansion Site OU-1?

The operational history of the site includes farmland and storage of construction material and equipment for the former Worthy Pipeline Company. Petroleum impacted soil from the adjacent property, the former Worthy Construction site (DMA Expansion Site OU-2), was spread on the southern portion of the site to allow for the contaminants to volatilize (Figure 2).

What is the environmental problem at the DMA Expansion Site OU-1?

The site may have been impacted by the farmland and equipment and construction storage historical use of the property. Soil sampling results showed elevated concentrations of several polycyclic aromatic hydrocarbons (PAHs) and metals. Groundwater sampling results showed elevated concentrations of metals.

Results of the soil sampling showed elevated concentrations of benzo(a)pyrene in both the surface and subsurface soil throughout the site. Additionally, benzo(b)fluoranthene is a localized contaminant of concern in the surface soil in the middle portion of the site. Several metals including iron, manganese and aluminum exceeded the unrestricted use scenario. The site does not pose an unacceptable risk under the construction worker risk scenario.

In groundwater, arsenic was detected in one monitoring well at a concentration above the drinking water standards. The evaluation of potential impact of groundwater contamination discharging to surface water (Christina River) indicated that the river is not impacted by the site contamination.

What does the owner want to do at the DMA Expansion Site OU-1?

The Delaware Military Academy plans to redevelop the site into athletic fields and a parking area for the Academy.

What clean-up actions are needed at the former DMA Expansion Site OU-1?

DNREC's clean-up plans include installation of a cap/cover system made up of a minimum of one foot of DNREC-approved fill over marker fabric to minimize exposure to site surface soils. Other areas of the site may be capped with asphalt and/or concrete depending on final design.

DNREC proposes the following clean-up actions at the site OU-1:

1. The surface of the Site will be covered with a cap which may consist of a minimum of one foot of DNREC-approved fill material over a marker fabric. Other areas of the site may be capped with asphalt and/or concrete depending on final design.
2. All construction and redevelopment work will be performed in accordance with a DNREC-approved Contaminated Material and Water Management Work Plan (CMWMWP), and the Site Specific Health and Safety Plan (HASP). Property Owner shall notify DNREC-SIRB prior to excavation or moving any of the on-site soil
3. Establish and implement a Long Term Stewardship (LTS) Plan within ninety (90) days following completion of the redevelopment. The LTS Plan will include annual inspections of the cap and will address any additional remedial actions that may become necessary based on results of the inspections.
4. Record an environmental covenant consistent with Delaware's Uniform Environmental Covenants Act, UECA (Title 7, Del. Code Chapter 79, Subtitle II). The environmental covenant will prohibit land disturbing activities without DNREC's prior written approval except in landscaping areas according to LTS plan, and prohibit the installation of wells and use of any groundwater at the Site.
5. Establish a Groundwater Management Zone (GMZ) on the Site preventing the use of groundwater without DNREC's written approval

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

The site will be redeveloped into athletic fields and a parking area. After redevelopment, a Long Term Stewardship (LTS) plan will be submitted for DNREC approval, which will include periodic inspection of the cap to document the condition of the cap. The investigation and remedial actions for OU2 have not

been finalized at this time. Once the remedial actions have been finalized, the proposed plan will be noticed.

DNREC plans to issue a Certification of Completion of Remedy for the site after the completion of clean-up, the redevelopment of the property, and the implementation of the uniform environmental covenant at the site. The LTS plan will be implemented.

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

The complete file on the site including the Brownfield Investigation is available at the DNREC office, 391 Lukens Drive in New Castle. Most documents are also found on:

<http://www.awm.delaware.gov/SIRB/Pages/SIRBPlans.aspx>

The 20-day public comment period begins on December 26, 2010 and ends at close of business (4:30 pm) on January 16, 2011. Please send written comments to the DNREC office or call Robert Newsome, Public Information Officer, or Morgan Price, Project Manager, at 302-395-2600.

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MMP10124.doc
DE 1484 II B 8

Glossary of Terms Used in this Proposed Plan

Brownfield	Property that is vacant or underutilized because of the perception or presence of an environmental problem.
Certified Brownfield	A brownfield that DNREC has determined is eligible for partial funding through the Delaware Brownfields Program.
Contaminant of Concern (COC)	These are potentially harmful substances at concentrations above acceptable levels (eg metals and PAH).
Certificate 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.
*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 proposal for cleaning up a hazardous site after it has been reviewed by the public and finalized.
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.
Proposed Plan of Remedial Action	A plan for cleaning up a hazardous site submitted by DNREC and subject to public comments.
Risk	Likelihood or probability of injury, disease, or death.
Risk Assessment Guidance for Superfund (RAGS)	An EPA guidance document for superfund sites
Site Specific Assessment (SSA) and Site Inspection (SI)	Environmental studies of a site including sampling of soils, groundwater, surface water, sediment and/or wastes on the property.

What is a *Proposed Plan*?

A Proposed Plan of Remedial Action (Proposed Plan) is a summary of how DNREC plans to clean up a contaminated site. A Final Plan of Remedial Action (Final Plan) is the adoption of the Proposed Plan, after all comments made by the public within the comment period of twenty days have been considered and addressed by DNREC.

The Delaware State Legislature passed the Hazardous Substance Cleanup Act (HSCA) in 1990. The Legislature made sure that members of the public would be informed about environmental problems in their own neighborhoods and have a chance to express their opinion concerning the clean up of those environmental problems before DNREC takes action.

After DNREC studies a site, it summarizes the problems there and proposes one or more possible solutions in a Proposed Plan. The Proposed Plan contains enough information to allow lay persons to understand the site. More detailed information can be found in the reports and documents approved by DNREC. All of the documents and reports created by DNREC or consultants during the course of the investigation of the site are available to the public at the offices of DNREC-SIRB or at DNREC's website:

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

DNREC issues the Proposed Plan by advertising it in at least one newspaper in the county where the site is located. The legal notices for the Proposed Plans and the Final Plans usually run on Wednesdays or Sundays in the legal classified section of the News Journal and/or the Delaware State News. The public comment period begins on the day (Wednesday), or the day after (Sunday) the newspaper publishes the legal notice for the Proposed Plan.

DNREC frequently holds public meetings during the comment period. Those meetings are usually held near the site in the evening. Citizens can request a public meeting if DNREC did not already schedule one.

Comments are collected at the public meetings, by phone or in writing. DNREC considers all comments and questions from the public before the Proposed Plan is finalized and adopted as a Final Plan.

Site Location

Site Location

Site Location Map
DMA Expansion Site
Wilmington, Delaware

	By	Date	Scale:	File Name:
Drawn	DPL	11/3/10	1:12000	Site Loc.mxd
Checked	ALN	11/3/10	Fig. No.	Figure 1
Project #	2001.01.21			

0 500 1,000

Feet



Source: Delaware Data 2007



Legend

-  OU-1
-  OU-2
-  Tax Parcels

**Operable Unit Map
DMA Expansion Site
Wilmington, Delaware**

	By	Date	Scale:	File Name:
Drawn	MPM	11/1/10	1:2400	OU Map.mxd
Checked	ALH	11/1/10	Fig. No.	
Project #	2561.01.21		Figure 2	
