

# FINAL PLAN OF REMEDIAL ACTION



## CHRYSLER NEWARK ASSEMBLY PLANT SITE – OPERABLE UNIT 8 (-AKA- University of Delaware's Science and Technology Campus)

*550 South College Avenue  
Newark, Delaware*

*August 9, 2011  
DNREC Project No. DE-0105*

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This Final Plan of Remedial Action (Final Plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) intention to address environmental contamination at the Chrysler Newark Assembly Plant Site – Operable Unit 8.

DNREC issued public notice of the Proposed Plan of Remedial Action (Proposed Plan) for Operable Unit 8 (OU-8) of the Site on July 17, 2011 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.

DNREC requires the following remedial actions be performed on OU-8 of the Chrysler Newark Assembly Plant Site:

1. Recording of an environmental covenant consistent with Delaware's Uniform Environmental Covenants Act [Title 7, Del. Code Chapter 79, Subtitle II] (UECA) on the property deed. The covenant will:

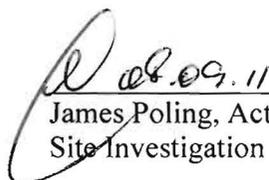
- prohibit the installation of groundwater wells for drinking water purposes without the prior written approval of DNREC
- identify the Site as located within a Groundwater Management Zone

2. Development and implementation of a DNREC-approved Long-Term Stewardship (LTS) Plan. The LTS Plan will detail the groundwater monitoring network and schedule to be followed in order to monitor the attenuation of the groundwater COCs.

3. Development and implementation of a Contaminated Materials Management Plan (CMMP) to ensure that contaminated materials encountered during intrusive activities are handled properly.

### **Approval:**

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

  
James Poling, Acting Program Manager II  
Site Investigation and Restoration Section



## **PROPOSED PLAN OF REMEDIAL ACTION**

**Chrysler Newark Assembly Plant Site – Operable Unit 8  
(-AKA- University of Delaware’s Science and Technology Campus)  
Newark, Delaware  
DNREC Project No. DE-0105**



July 2011

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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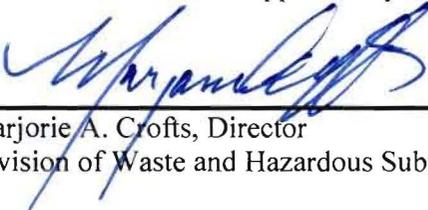
# PROPOSED PLAN OF REMEDIAL ACTION

Chrysler Newark Assembly Plant Site (OU-8)  
Newark, Delaware  
DNREC Project No. DE-0105



**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
7.8.11
Date

## Chrysler Newark Assembly Plant Site (OU-8)



### **What is the Chrysler Newark Assembly Plant Site (OU-8)?**

The Site is the former location of the Chrysler Newark Assembly Plant. The Site is depicted on Figure 1. It is currently owned by 1743 Holdings, LLC, a wholly-owned subsidiary of the University of Delaware. 1743 Holdings, LLC entered into a Brownfields Development Agreement (BDA) with the Department of Natural Resources and Environmental Control (DNREC) – Site Investigation and Restoration Section (SIRS) to perform a Brownfield Investigation and address contamination determined to be present on the Site. The Site has been divided into operable units or smaller areas to more easily manage its investigation and cleanup. **This proposed plan specifically addresses Operable Unit 8 (OU-8) of the Site. The boundaries of OU-8 are depicted on Figure 2.**

**Tax Parcel Number:** 18-039.00-002 (See Figure 2 for OU-8 boundaries)

**Address:** 550 South College Avenue; Newark, Delaware

**Nearest major intersection:** Route 4 (Christina Parkway) and South College Avenue (Route 896)

**Area:** ~48 acres

**Surrounding Property:** The property to the east of OU-8 is the former location of the paint mix building and the eastern portion of the Main Assembly Building. The former “New Paint Shop” and a paved parking lot/vegetated area is located along the western boundary of OU-8. Christina Parkway is located along the southern boundary of OU-8.

**Zoning:** MI- General Industrial

**Site Utilities:** Underground utility lines, including water, sewer, and electric run beneath the OU-8 portion of the Site.

**Surface water:** There are no surface water bodies present on OU-8; however, Silver Brook emerges from a culvert running under the Site, along the southeastern boundary of OU-8.

**Topography:** The OU-8 portion of the Site generally slopes from north to south. The area is covered with bituminous concrete pavement and concrete slab from former building foundations.

**Groundwater:** Groundwater was encountered at depths ranging from 3 to 13.5 feet below ground surface. Flow direction beneath OU-8 is southeast towards Silver Brook. (Figure 3)

### **What happened at the Chrysler Newark Assembly Plant Site (OU-8)?**

Prior to the late 1940s/early 1950s, the Site was utilized for agricultural purposes. Subsequently, military tanks and later, automobiles were assembled at the Site. OU-8 specifically was the location of a portion of the former Main Assembly Plant, including the Lenape Building/South Body Shop, the former industrial wastewater treatment plant, paved roadway and parking areas. In 1955, there were five (5) underground storage tanks (USTs) installed for gasoline, waste oil and No.

4 fuel oil storage, outside of what was referred to as the “Cushion Room”. The USTs ranged in size from 2,000 gallons to 15,000 gallons. Additionally, three (3) USTs were installed beneath the former location of the South Body Shop. These USTs ranged in size from 250 gallons to 10,000 gallons. All eight (8) USTs were removed by 1989. The results of post excavation sampling in the former location of the Cushion Room USTs enabled the DNREC Underground Storage Tank Section to issue a No Further Action letter in 1990.

**What is the environmental problem at the Chrysler Newark Assembly Plant Site (OU-8)?**

Environmental investigations conducted on the OU-8 portion of the Site indicated that there are no contaminants of concern (COCs) in soil for either an unrestricted use (residential) or restricted (commercial/industrial) exposure scenario. There were detections of some volatile organic compounds (VOCs) at concentrations below the corresponding DNREC Uniform Risk-Based Standards (URS) values in both soil and groundwater. The COCs for groundwater are: 1,1 dichloroethene, benzo(a)anthracene and nickel.

The following environmental investigations were performed on the OU-8 portion of the Site:

- 1985: DNREC conducted a Preliminary Assessment on the entire Site, on behalf of the United States Environmental Protection Agency (US EPA). The assessment recommended further investigation at the Site due to repeated detections of perchloroethylene (PCE) and trichloroethylene (TCE) in the City of Newark municipal wells to determine if the Site was a contributor to the contamination.
- 1986: DNREC conducted a Desktop Site Inspection (SI). There were no soil or groundwater samples collected on the OU-8 portion of the Site during this investigation. The investigation did not recommend any follow-up activities at the Site.
- 2008: ATC conducted Phase I and Phase II investigations on the entire Site, on behalf of Chrysler. The investigations indicated no detections of VOCs, semi-VOCs, or lead above DNREC standards in soil on the OU-8 portion of the Site. There were, however, detections of multiple VOCs in the groundwater collected beneath OU-8 at concentrations slightly exceeding Delaware’s Uniform Risk-Based Remediation Standards (URS) values.
- 2008: Duffield Associates conducted an Environmental Site Assessment on behalf of 1743 Holdings, LLC. Analytical results indicated no detections of petroleum hydrocarbons, Priority Pollutant metals, or Target Compound List VOCs in the soil samples collected on the OU-8 portion of the Site. In groundwater samples collected from beneath OU-8, only one detection of lead above Delaware URS values was observed. The report indicated that additional investigation of the entire Site was warranted.

- 2010: Duffield Associates conducted a Limited Current Conditions Assessment on behalf of 1743 Holdings, LLC. The results of groundwater data collected on the OU-8 portion of the Site during this assessment did not indicate that any VOCs exceeded Delaware URS values. However, aluminum, iron, manganese and nickel were detected at concentrations exceeding Delaware URS values.
- 2011: Duffield Associates conducted a Brownfield Investigation (BFI) consisting of soil and groundwater sampling on the OU-8 portion of the Site on behalf of the 1743 Holdings, LLC. There were no COCs identified for soil. The following constituents were determined to be COCs in groundwater because they were detected at concentrations exceeding the corresponding Delaware URS values: 1,1 dichloroethene, benzo(a)anthracene and nickel.
- 2011: Duffield Associates conducted a Supplemental Passive Soil Gas Assessment in the vicinity of two monitoring wells with detections of 1,1 dichloroethene in an attempt to identify the source areas. The sampling identified low detections of chlorinated hydrocarbons, namely tetrachloroethene (PCE), and petroleum hydrocarbons, in localized areas.
- 2011: Duffield Associates conducted a Supplemental Soil Assessment in the areas of the highest detections of hydrocarbons identified during the soil gas assessment. Soil samples were collected on a targeted and tighter grid pattern than during the BFI in another attempt to identify the source areas. Once again, the results of the soil samples collected did not indicate any exceedence of VOCs as compared to corresponding Delaware URS values.

**What does the owner want to do at the Chrysler Newark Assembly Plant Site (OU-8)?**

The entire Site is the location of the University of Delaware’s Science and Technology Campus. The OU-8 portion, specifically, is the future location of light industrial/manufacturing development, which will include associated buildings, underground utilities and parking.

**What remedial actions are proposed at the Chrysler Newark Assembly Plant Site (OU-8)?**

A remedial action for soils at OU-8 is not required because there is no unacceptable risk associated with low levels of contaminants found in the soil under either an unrestricted or restricted exposure scenario. For groundwater, however, DNREC will require an environmental covenant, or restriction, be recorded on the property deed. The covenant will prohibit future use of groundwater in OU-8 for drinking water purposes without the prior written approval of DNREC.

DNREC requires the following remedial actions be performed on the Former Chrysler Newark

Assembly Plant Site (OU-8):

1. Recording of an environmental covenant consistent with Delaware's Uniform Environmental Covenants Act (Title 7, Del. Code Chapter 79, Subtitle II) (UECA) on the property deed. The covenant will: 1) prohibit the installation of groundwater wells for drinking water purposes without the prior written approval of DNREC and 2) identify the Site as located within a Groundwater Management Zone.
2. Development and implementation of a DNREC-approved Long-Term Stewardship (LTS) Plan. The LTS Plan will detail the groundwater monitoring network and schedule to be followed in order to monitor the attenuation of the groundwater COCs.
3. Development and implementation of a Contaminated Materials Management Plan (CMMP) to ensure that contaminated materials encountered during intrusive activities are handled properly.

**What are the long-term stewardship requirements that are proposed for the Chrysler Newark Assembly Plant Site (OU-8)?**

The long-term stewardship requirements proposed for the OU-8 portion of the Site include: following the groundwater monitoring schedule set forth in the DNREC-approved LTS Plan, as well as, continued adherence to the environmental covenant to be recorded on the property deed.

DNREC will issue a Certification of Completion of Remedy (COCR) for the Chrysler Newark Assembly Plant Site (OU-8) following the completion of the aforementioned remedial actions.

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

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

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

The 20-day public comment period begins on Sunday, July 17, 2011, and ends at close of business (4:30 pm) on Monday, August 8, 2011. Please send written comments to the DNREC office or call Lindsay Hall or Wendy March, Project Managers, at: 302-395-2600.

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## Glossary of Terms Used in this Proposed Plan

<b>Contaminants of Concern (COC)</b>	These are potentially harmful substances at concentrations above acceptable levels (e.g. metals and PAHs).
<b>Certification of Completion of Remedy (COCR)</b>	A formal determination by the Secretary of DNREC that remedial activities required by the Final Plan of Remedial Action have been completed.
<b>Final Plan of Remedial Action</b>	DNREC's adopted plan for cleaning up a hazardous site.
<b>Hazardous Substance Cleanup Act (HSCA)</b>	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.
<b>Proposed Plan of Remedial Action</b>	DNREC's initial plan for cleaning up a hazardous site, which is subject to public comment before being adopted as final.
<b>Site Inspection (SI)</b>	Environmental study of a site which includes the sampling of soils, groundwater, surface water, sediment and/or wastes on the property, as appropriate. This evaluation is performed on behalf of the United States Environmental Protection Agency (U.S. EPA).
<b>Brownfield Investigation (BFI)</b>	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.
<b>Risk</b>	Likelihood or probability of injury, disease, or death.
<b>Brownfield Development Agreement (BDA)</b>	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.
<b>Uniform Environmental Covenant Act (UECA)</b>	Deed restrictions on the site. These can include restrictions on soil intrusion, groundwater usage or usage of the site based on the extent of the cleanup.
<b>Uniform Risk-Based Remediation Standards (URS)</b>	A set of concentration criteria for various contaminants potentially present in site media that are developed for protection of human health and the environment

## **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 cleanup 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 Delaware Environmental Navigator website:

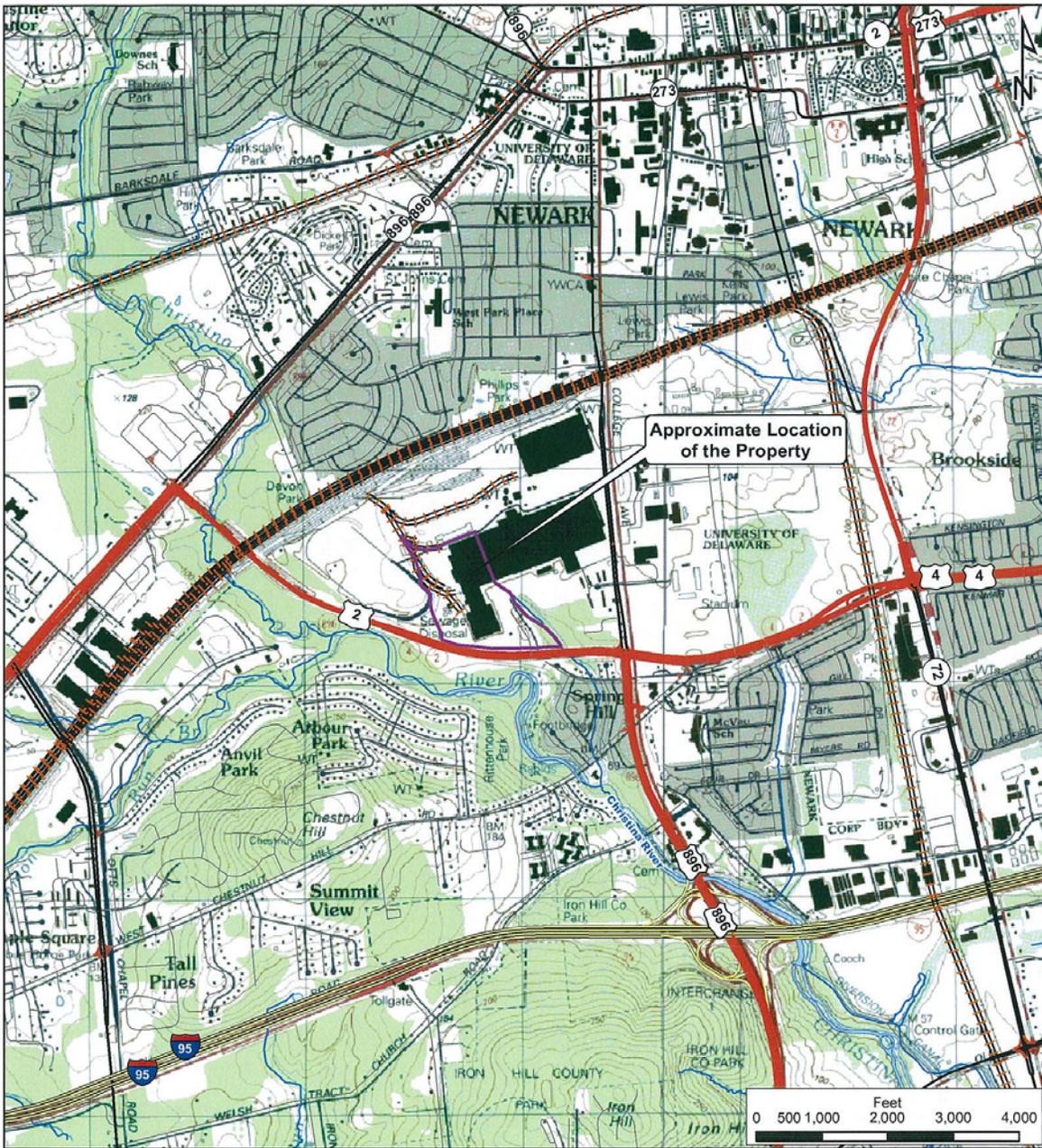
<http://www.nav.dnrec.delaware.gov/DEN3/>

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 during a weekday evening, at a location near the site. Citizens can request a public meeting if DNREC did not already schedule one.

The public may comment on the Proposed Plan by letter or email, or at the public meeting. DNREC considers all comments and questions from the public before the Proposed Plan is finalized and adopted as a Final Plan.

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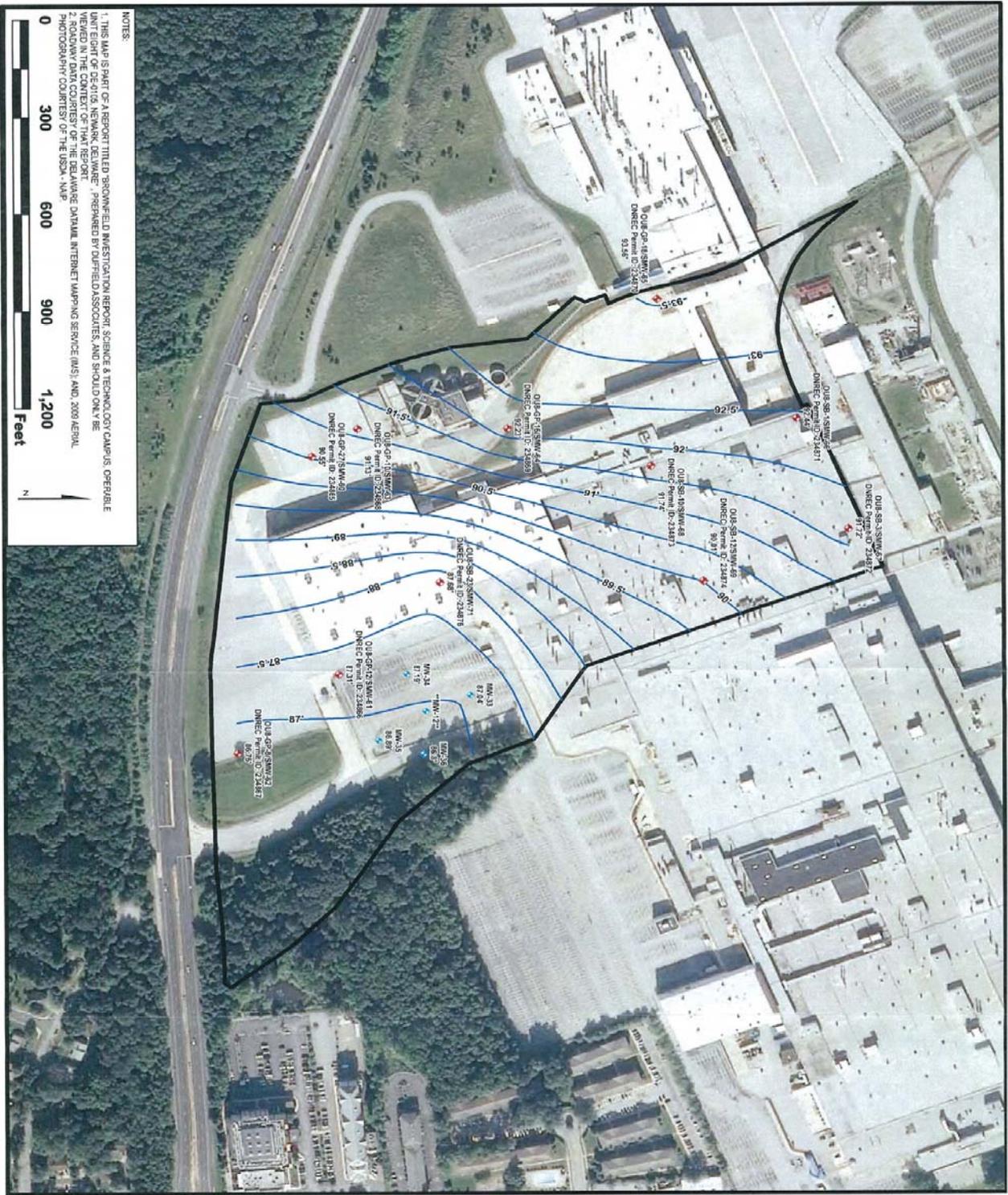


NOTES: This location sketch is adapted from the USGS Topographic Map, 7.5 Minute Series, for Wilmington-South dated 1998.

DATE: JUNE 2011	Site Location Sketch  <b>BFI REPORT: SUPPLEMENTAL SOIL ASSESSMENT</b>  OPERABLE UNIT NO. 8 1743 HOLDINGS, LLC PROPERTY SCIENCE AND TECHNOLOGY CAMPUS FORMER CHRYSLER ASSEMBLY PLANT  NEWARK-NEW CASTLE COUNTY-DELAWARE	BASEMAP: USGS Digital Raster Graphic	 <b>DUFFIELD ASSOCIATES</b> Consultants in the Geosciences 5400 LIMESTONE ROAD WILMINGTON, DE 19808 TEL. (302)279-6634 FAX. (302)489-2203  OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA, AND NEW JERSEY  E-MAIL: DUFFIELD@DUFFINET.COM
SCALE: 1 inch = 2,000 feet		DRAWN BY: MPN	
PROJECT NO. 7333.EP	CHECKED BY: <i>mrb 6/30/11</i>		
SHEET: FIGURE 1	FILE: 7333EP_Figure1_SiteLocation.mxd		

Figure 1: Site Location Map





**NOTES:**  
 1. THIS MAP IS PART OF A REPORT TITLED "GROUNDWATER INVESTIGATION REPORT, SCIENCE & TECHNOLOGY CAMPUS OPERABLE UNIT NO. 8 OF 06-0105, NEWARK, DELAWARE", PREPARED BY DUFFIELD ASSOCIATES, AND SHOULD ONLY BE VIEWED IN THE CONTEXT OF THAT REPORT.  
 2. ROADWAY DATA COURTESY OF THE DELAWARE DATAIAL INTERNET MAPPING SERVICE (DIMS), AND, 2009 AERIAL PHOTOGRAPHY COURTESY OF THE USGS - NIP.

**Legend**  
 Operable Unit No. 8  
 Installed Monitoring Wells  
 Existing Monitoring Wells  
 Water Table Elevation (1/1/2008)

**Scale:** 1" = 300'  
**Date:** MAY 2011  
**Project No.:** 7333 EP  
**Sheet:** FIGURE 7

**ESTIMATED GROUNDWATER ELEVATION SKETCH**  
**OPERABLE UNIT NO. 8**  
 1743 HOLDINGS, LLC PROPERTY  
 SCIENCE AND TECHNOLOGY CAMPUS  
 FORMER CHRYSLER ASSEMBLY PLANT  
 NEWARK-NEW CASTLE COUNTY-DELAWARE

**Drawn By:** MKN  
**Checked By:** MCB  
**File:** 7333EP\_Fig7.mxd

**Basemap:** 2009 AERIAL PHOTOGRAPHY  
**Scale:** 1" = 300'  
**Date:** MAY 2011  
**Project No.:** 7333 EP  
**Sheet:** FIGURE 7

**DUFFIELD ASSOCIATES**  
 580 LINDSTONE ROAD  
 WILMINGTON, DE 19804  
 TEL: (302) 484-1100  
 FAX: (302) 484-1101  
 WWW.DUFFIELDASSOCIATES.COM  
 PROJECT NO. 7333 EP  
 SHEET NO. 7333 EP  
 FIGURE 7

Figure 3: OU-8 Groundwater Contour Map