PROPOSED PLAN OF REMEDIAL ACTION

AMP Circuits Site
Newark, Delaware
DNREC Project No. DE-0248

April 2010

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

CONTENTS

PROPOSED PLAN OF REMEDIAL ACTION

AMP Circuits Site
Newark, Delaware
DNREC Project No. DE-0248

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

Approved by:

Marjorie A. Crofts, Acting Director
Division of Air & Waste Management

4.7.10
Date

AMP Circuits Site

What is the AMP Circuits Site?

The AMP Circuits Site (Site) is a Delaware Voluntary Clean-up Program (VCP) Site located near the entrance of the Delaware Industrial Park in Newark, Delaware. The Site includes a 19,000-square-foot single story building situated on the western half of a 2-acre property. The facility building was constructed at two different times; the southern part was constructed by DuPont in 1973. The northern part was added by ICI Americas in 1989 and is referred to as the "Clean Room". Near the northeastern section of the building is a shed measuring approximately 15 feet by 70 feet. DuPont sold the property to ICI in 1985, who then sold it to AMP Circuits in 1990. Vincent A. Baffone of Newark purchased the property in 2000 and is the current property owner. The building is presently unoccupied.

Tax Parcel Numbers: 1101000004
Address: 710 Dawson Drive in Newark, Delaware 19713
Nearest major intersection: Dawson Drive and South Chapel St. (DE Route 72)
Area: 2 acres
Surrounding Property: Property is located in an industrial park suited for businesses
Zoning: Industrial
Site Utilities: Water, sewer, electric, telecommunications
Surface water: Christiana River , approximately 0.7 miles southwest; Sunset Lake, approximately 2 miles south of the Site
Topography: Relatively flat
Groundwater: The Site is underlain by the Columbia (shallow) and Potomac (deep) Formations. Shallow groundwater flows in a southwestern direction on the Site and deep groundwater flows to the south.

What happened at the AMP Circuits Site?

In 1995, volatile organic compounds (VOCs) were detected in groundwater during a property transfer investigation. In 2000, DuPont became legally responsible for the remedial investigations conducted since 1995, as well as any future clean-up. In response, DuPont enrolled in the Delaware VCP. The source of groundwater contamination at the AMP Circuits Site is believed to to have originated from the drainage line of an underground storage tank (UST) north of the Site building. The site groundwater is contaminated with substances related to the development and limited manufacturing of printed circuit boards and associated materials between 1973 and 1997. Chlorinated solvent usage and metal plating were conducted at various times and to varying degrees during that time period.

The operational Site history is listed below:

Pre-1947 – U.S. War Assets Administrator
1947-1958 – Knabb Barrel Corporation
1958-1964 – Continental Distilling Corporation
1964-1968 – Delaware Industrial Park
1968-1973 – Holotron Corporation
1973-1985 – DuPont Riston™

1985-1990 – ICI Americas: The northern part building was added by ICI in 1989 and is referred to as the "Clean Room".
1990-1996 – AMP-AKZO Phase II investigation in 1995 found VOCs in groundwater
1996-2000 – AMP Circuits (AMP later became a division of Tyco Industries)
2000- Present – 710 Dawson LLC: Most recently leased the Site to Prestige Powder Finishing Company and a Contractor who used the former clean room area for storage.

What is the environmental problem at the AMP Circuits Site?

A plume of VOCs exists in shallow groundwater at the Site. The plume extends southwest under the Site building and onto the adjacent property, owned by Aero EAR Composite Company. The off-Site plume contains low levels of contaminants. Remedial investigations conducted at the Site have concluded that there are no known soils serving as a source of contamination to groundwater. The Contaminants of Concern (COCs) in groundwater are chlorinated solvents including 1, 1-Dichloroethane (DCA); 1,1-Dichloroethene (DCE); 1,2-Dichloroethane (cis-DCA); Tetrachloroethylene (PCE); Trichloroethene (TCE) and Vinyl Chloride (VC).

Weston Environmental Assessment; November 1989
This assessment included an inspection of conditions and operations of the site, a review of historical information, an assessment of groundwater conditions, and analytical results of subsurface soil sampling. Two subsurface soil borings where completed next to DuPont's former waste metals storage tank. This investigation found no VOCs above the laboratory reporting limits. Weston's recommendation was that no further action was warranted.

Weston Environmental Site Assessment; October 1995
This site-wide assessment (Phase II ESA) for a property transaction included a focused information survey, site reconnaissance, and field sampling. Monitoring wells MW-2, MW-3, and MW-4 were installed. This investigation found that groundwater had been impacted by VOCs. Weston's recommendation, based on their 1995 environmental assessment, was that additional soil and groundwater investigations were warranted.

Weston Baseline RI/ Risk Assessment; February 1997
This assessment included a review of AMP Incorporated Global Environmental Services files and AMP Circuits corporate and facility files, a title review, interviews with appropriate corporate and facility personnel, site reconnaissance and a field investigation. Monitoring wells MW-2, MW-3 and MW-4 were sampled and five soil samples were also collected. This investigation suggested that the level of VOCs in the groundwater at the property boundary, down-gradient of the manufacturing area, represented minimal risk to human health and the environment. The recommendation was made that natural attenuation be evaluated for addressing the groundwater contamination.

ERM Phase II RI; August 1998
This investigation included VOC source area identification, groundwater delineation, a water level study and groundwater monitoring. Borings GP-10 through GP-48 were installed, as was monitoring well MW-5.
Based on the analytical results of the samples taken during this investigation, it was determined that VOC concentrations reduce rapidly along the groundwater plume axis from the source area to the property boundary. No indication of high solvent concentrations in the unsaturated zone was found. The center (i.e. highest concentration of VOCs) of the plume was found to be in the localized area around GP-41.

ERM Phase III RI; June 1999
This investigation included the installation of monitoring well MW-6, as well as source area borings SB-101 to SB 129 (also referred to as GP-101 to GP-129). Soil and groundwater samples were collected and analyzed by ERM's Field Analytical Services Team (FAST). The Geoprobe source area borings did not find any levels of

VOCs in the soil high enough to account for the underlying condition of the groundwater. The boring for MW-6 provided data on the condition of the deeper subsurface at the Site; no VOCs were detected in the deeper saturated zone. Aquifer characteristic data, i.e. slug test, particle size and Shelby tube results, indicated that groundwater flow is primarily horizontal and at a slow seepage rate. The technical recommendations of this report suggested that offsite VOC migration in the ground water is minimal, and no off-site delineation is required. Natural attenuation was suggested as the remedy for the VOC contamination.

ERM Phase IV RI; August 1999
This investigation included source area sampling by excavating in the vicinity of the abandoned DuPont underground storage tank (UST). Soil samples were collected and analyzed by Core Laboratories, Inc. The results indicate there were no VOCs in the immediate vicinity of the DuPont tank that would account for the groundwater plume in that area.

URS WCD Drain-line Area Investigation; October 1999
This investigation by DuPont's consultant sampled around the drain lines installed and used by ICI and AMP in the area near DuPont's former underground metal waste tank. The drain lines originate from the AMP/ICI Clean Room building. Soil was excavated to a depth of 17 feet. Sample results indicated a small amount of VOC near the drain lines, but not at concentrations high enough to be a continuing source of contamination to the groundwater.

ERM Off-Site Groundwater Investigation; December 1999
This was the final phase of the remedial investigation (RI) by DuPont's consultant. The objectives of this investigation were to assess the potential for off-site migration of VOCs and to better understand the hydrogeologic conditions around the Site. One deep soil boring was completed to a depth of 75 feet below ground surface and additional soil borings and groundwater samples were collected.

DuPont CRG/URS Focused Feasibility Study; February 14, 2001
Based on the data collected during the RI, DuPont presumptive remedy for the Site was monitored natural attenuation (MNA).

DuPont CRG/URS Focused Feasibility Study Addendum I; June, 2007
This Addendum summarizes the additional investigations conducted by DuPont to characterize the on-site source area and the extent of the groundwater contaminant plume.

DuPont CRG/URS Focused Feasibility Study Addendum I; Revised September 2009
This revision to the Addendum includes the findings of the enhanced anaerobic biodegradation pilot test to reduce source area constituents and provides a recommended program to conduct enhanced bioremediation through injection of substrate into the source area coupled with MNA at the Site.

What does the owner want to do at the AMP Circuits Site

The AMP Circuits Site is currently developed containing an industrial building and small adjacent shed structure. There are no additional plans for development at the Site.

What clean-up actions have been taken at the AMP Circuits Site?

There have been no clean-up actions performed to date at the AMP Circuits Site.

What additional clean-up actions are needed at the AMP Circuits Site?

DNREC's Proposed Plan includes monitored natural attenuation (MNA) through enhanced biodegradation of VOCs as the proposed remedy for groundwater at the AMP Circuits Site. The injection of substrate into the source area will create enhanced anaerobic biodegradation of source area constituents. DNREC's Proposed Plan also includes limiting the site use for non-residential purposes, prohibiting the use of groundwater at the site through implementation of a groundwater management zone (GMZ), and cona

DNREC recommends the following remedial actions for the site:

1. Introduction of lactate, SRS, or EHC as an electron donor for the dechlorination of 1,1-DCE and 1,1-DCA in the area of MW-10 and MW-41.

2. Introduction of KB-1 Plus to assist in the breakdown of dechlorination of constituents in the area of MW-10.

3. Developing an operation and maintenance (O&M) plan to monitor and sample groundwater in the source area and down-gradient monitoring wells.

4. Placing an Environmental Covenant (EC), consistent with the Uniform Environmental Covenants Act (UECA), on the property limiting its use only to non-residential purposes.

5. Placing a groundwater management zone (GMZ) on the Site prohibiting the installation of any water wells or the use of groundwater at the site without the prior written approval of DNREC.

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

The AMP Circuits Site is currently used for light business use and will continue such use subsequent to remediation.

DNREC plans to issue a Certificate of Completion of Remedy for the site after the completion of clean-up, and 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 Remedial Investigation is available at the DNREC office, 391 Lukens Drive in New Castle. Most documents are also found on:

http://www.dnrec.state.de.us/dnrec2000/Divisions/AWM/sirb/

The 20-day public comment period begins on April___, 2010 and ends at close of business (4:30 pm) on May ____, 2010. Please send written comments to the DNREC office or call, Robert C. Asreen, Jr. Project Manager, at: 302-395-2600.

RCA:vdc; RCA10018.doc; DE 0248 II B 8

Figure 1: Location Map
Figure 2: Site Map
Attachment 1: Current Site Photos

Glossary of Terms
Used in this Proposed Plan

Anaerobic	Without the requirement of air.
Biodegradation	The chemical breakdown of materials by a physiological environment.
Contaminants of Concern (COCs)	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.
EHC®	In-situ treatment to stimulate dechlorination of groundwater
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.
Plume	A space in air, water, or soil containing pollutants released from a specific source.
Proposed Plan of Remedial Action	A plan for cleaning up a hazardous site submitted by DNREC and subject to public comments.
Monitored natural attenuation	The reliance of natural processes to achieve site specific remedial objectives.
Risk	Likelihood or probability of injury, disease, or death.
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.
Source area	The location in which contaminants are believed to be derived from.
Slow Release Substrate (SRS)™	In-situ treatment to stimulate dechlorination of groundwater
Voluntary Clean-up Program (VCP)	Available to all parties who may be liable for the contamination of a property, but who wish to settle their liabilities with the Department of Natural Resources and Environmental Control (DNREC) under the Hazardous Substance Cleanup Act (HSCA).

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.

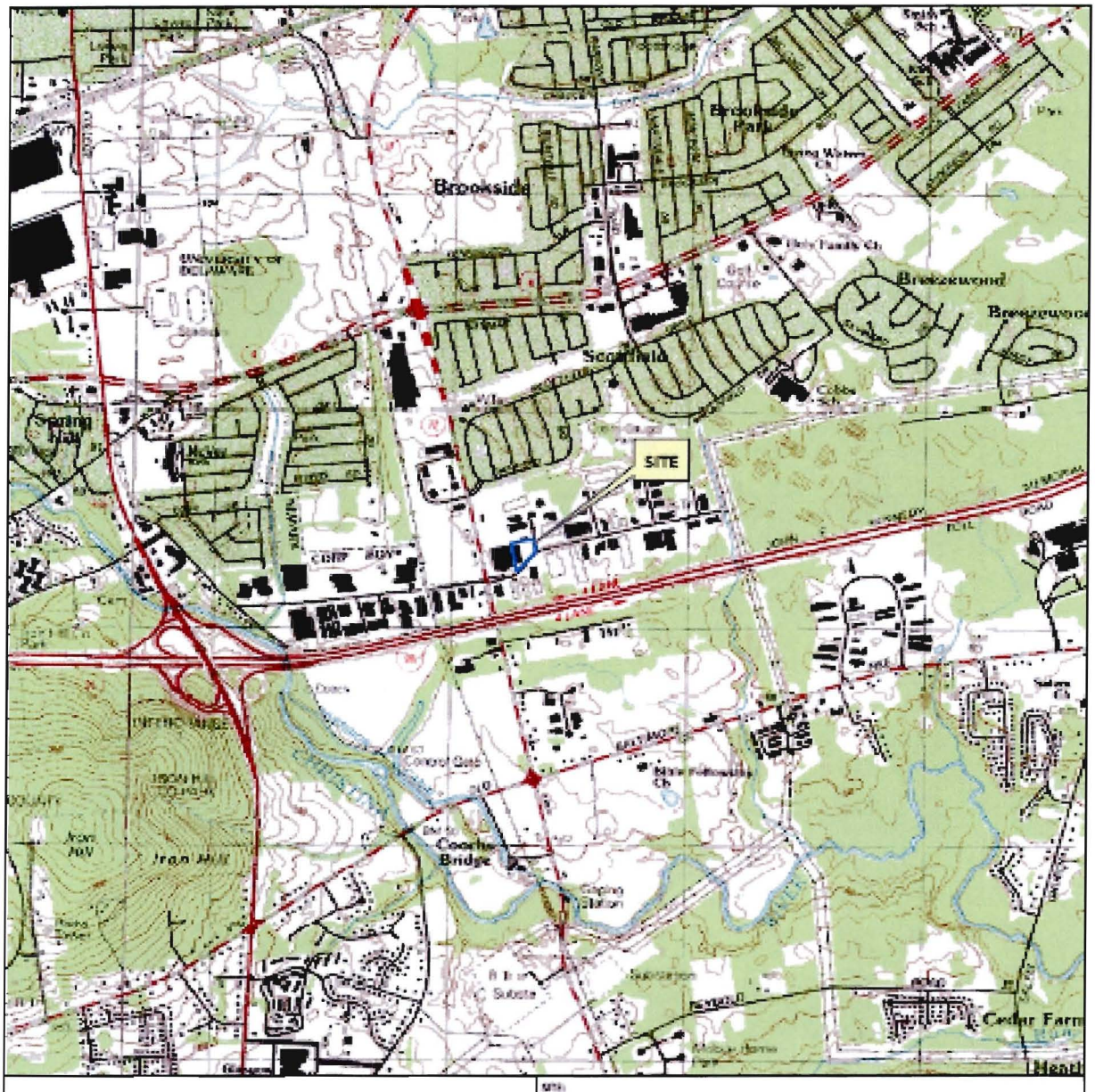
After DNREC studies a site, it summarizes the problems there and proposes one or more possible solutions in a Proposed Plan. The Proposed Plan contains enough information to allow lay persons to understand the site. More detailed information can be found in the reports and documents approved by DNREC. 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:

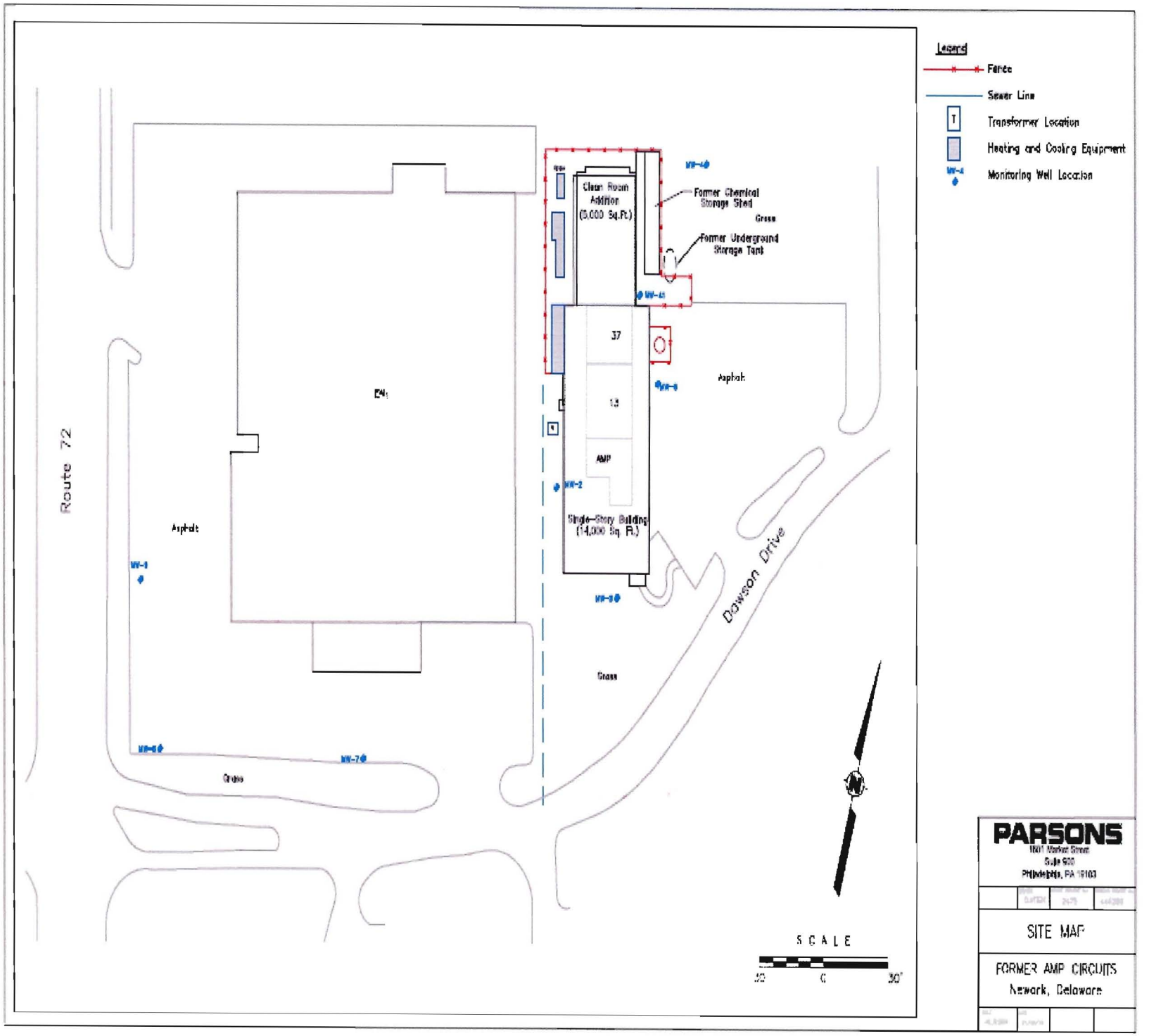
http://docs.dnrec.delaware.gov/sirbsitefiles.cfm

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
Brookside
Scottfield
Cedar Farm
QUADRANGLE LOCATION
DELAWARE
0 500 1,000 2,000 Feet
AMP CIRCUITS
NEWARK, DELAWARE
SITE LOCATION
PARSONS
CREATED BY: MTK
DATE: 1/20/2010
FIGURE NUMBER: 3
JOB NUMBER: 445289


Legend
Fence
Sewer Line
Transformer Location
Heating and Cooling Equipment
Monitoring Well Location
Clean Room Addition (5,000 Sq.Ft.)
Former Chemical Storage Shed
Former Underground Storage Tank
Grass
37
18
AMP
Single-Story Building (14,000 Sq. Ft.)
Asphalt
Route 72
Dawson Drive
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
SCALE
0
30'
PARSONS
SITE MAP
FORMER AMP CIRCUITS
Newark, Delaware

Attachment 1
Current Site Photographs

Former AMP Facility View to the North

Former AMP Facility View to the Northeast