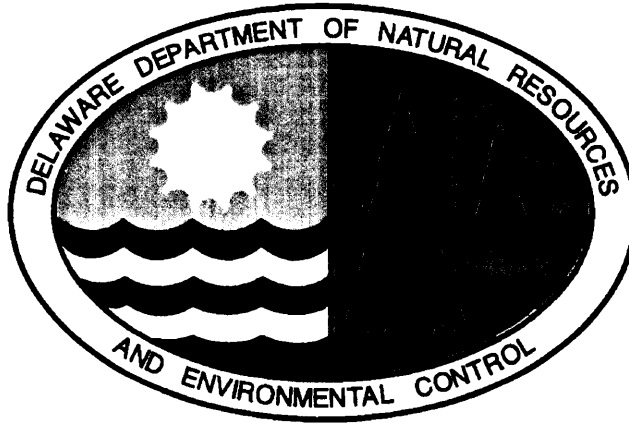


STATE OF DELAWARE

**DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL-
SITE INVESTIGATION AND RESTORATION BRANCH**

FINAL PLAN OF REMEDIAL ACTION



June 2006

**Ion Power Formally South Parcel of Metachem Site
New Castle, DE**

DNREC Project No. DE-1322

This Final Plan of Remedial Action (Proposed Plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) Final cleanup alternative for the Ion Power property in New Castle, Delaware. For site-related reports and more information, please see the public participation section of this document.

The purpose of the Final Plan is to provide specific information about the soil and ground-water contamination and the cleanup alternatives DNREC has considered. In addition, as described in Section 12 of the Delaware Regulations Governing Hazardous Substance Cleanup (Regulations), DNREC has provided notice to the public and an opportunity for the public to comment on the Proposed Plan. Following the conclusion of the comment period, DNREC has reviewed and considered all of the received comments and issues this Final Plan. The Final Plan designates the selected remedy for the site. No public comments were received during the public participation period for the Proposed Plan of Remedial Action. All investigations of the site, the Proposed Plan, public comments, DNREC's responses to the comments, and the Final Plan will constitute the Remedial Decision Record.

This Final Plan summarizes the remedial investigation that has taken place at the site, which is included in the administrative record file. Copies of these documents can be obtained or viewed at the DNREC offices in New Castle, Delaware.

INTRODUCTION

The property is located at 720-750 Governor Lea Road, Bear, New Castle County, Delaware. The approximately 18.5-acre property (henceforth “the Site”) is located on the west side of Route 9, approximately 1.5 miles east of the Delaware River (Figure 1). The facility was utilized as agricultural land until the 1980s, when the two buildings and parking lots were constructed on the property for use as administrative offices for the former Metachem site located across Governor Lea Road to the north. The facility and the property are currently owned by Ion Power, Inc.

The Site officially entered into the Brownfields Development Program (BDP) pursuant to the provisions of the Delaware Hazardous Substance Cleanup Act, 7 Del. C. Chapter 91 (HSCA), on May 4, 2004. The goal for entering the Site into the BDP was to complete an investigation of the property to support the redevelopment of the site and to obtain a Certificate of Completion of Remedy (COCR) pursuant to HSCA. The Site has been assigned the Site Investigation and Restoration Branch (SIRB) Identification Number of DE-1322.

Ten Bears Environmental, Inc. (Ten Bears) completed a comprehensive Remedial Investigation (RI) of the Site on behalf of Ion Power to assess potential contamination, specifically any adverse impacts to soil and groundwater. The RI was completed in June 2005 and DNREC – SIRB approved the final RI report dated December 27, 2005. The RI report included evaluations of the risk to human health and an evaluation of the fate and transport of Site contaminants to human health.

SITE DESCRIPTION

The Site is described in the tax maps of New Castle County, as tax parcel 26-049.00.011. The parcels is zoned “light industry and commercial.” The Site occupies approximately 18.5 acres along Governor Lea Road and Route 9, in Bear, New Castle County, Delaware. The property is bound by the Valero Refinery to the south, Route 9 to the east, a railroad track and farm fields to the west and, the Metachem site and Oxychem baseball field to the north across Governor Lea Road. Approximately one-half (1/2) of the property is located within a New Castle County Water Resource Protection Area (WRPA). This is defined as a Critical Water Use Area in the Remediation Standards Guidance under the Delaware Hazardous Substance Cleanup Act (Figure 2).

The Site was utilized as farm land until the mid-1980s when the Site was used by Standard Chlorine and later Metachem for use as a parking facility, “change house” and administrative facility. The Site has remained mostly undeveloped with the exception being two one-story concrete-block commercial buildings along the northern border with Governor Lea Road.

SITE INVESTIGATION HISTORY

Ten Bears completed a RI of the Site in June 2005 and the RI was approved by DNREC via correspondence dated December 27, 2005. This investigation involved the collection of samples from surface soil, subsurface soil, and groundwater beneath the Site. The samples collected from within the New Castle County WRPA were evaluated using the Critical Water Resource Areas

Uniform Risk Based Remediation Standards (URS). The samples collected from outside of the WRPA area were evaluated using the URS values for Non-Critical Water Resource Areas. A distinctive difference exists between the values for Critical versus Non-Critical Water Resource Areas.

Soil

Sixty-seven (67) grab soil samples were taken to the DNREC - SIRB laboratory for field screening analysis (Figure 3). A subset of these samples were submitted for fixed laboratory analysis including five (5) for metals and pesticides/polychlorinated biphenyls (PCBs) and nine (9) samples for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) including Metachem contaminants of concern (COC). The confirmatory samples did not reflect any values exceeding the URS for Critical or Non-Critical Water Resource Areas. Therefore, a data table is not presented for soil as part of this Final Plan of Remedial Action. This data are available in site documents upon request.

Subsurface Soil

Subsurface sampling was conducted in conjunction with RI soil sampling activities. Following the field screening process, samples were subjected to laboratory analysis. Metals, VOCs, SVOCs, or pesticides/PCBs were not detected in excess of the URS values for Critical and Non-Critical Water Resource Areas in subsurface soils. Therefore, a data table is not presented for subsurface soil as part of this Proposed Plan of Remedial Action. This data are available in site documents upon request.

Groundwater

Four (4) groundwater monitoring wells were installed to assess the groundwater at the Site. No distinction is made between Critical and Non-Critical Water Resource Areas for groundwater URS values. Data from two monitoring wells located on-site from previous work were included in the evaluation of groundwater. The only metal found dissolved in groundwater above the URS value was manganese (216 µg/L). The VOC identified in groundwater above the restricted use URS values was tetrachloroethylene (PCE) (6 µg/L). The source of the PCE is most likely from off-site due to the direction of groundwater flow (northeast) and the location of the well near the southeastern property boundary. Table 1 summarizes the results for groundwater and the maximum concentration of each contaminant identified above the URS value.

REMEDIAL INVESTIGATION RESULTS

A detailed discussion of the sampling results is included in the Brownfield Investigation Report. The data tables summarize the results for surface soil, subsurface soil, and groundwater.

TABLE 1
GROUNDWATER

| | | | |
|------------------------------|------|-----|----|
| Manganese (dissolved) | MW-1 | 216 | 50 |
| Tetrachloroethylene (PCE) | MW-3 | 6 | 5 |

The URS values referenced above are guidance values based upon assumptions of exposure and risk. In lieu of their usage, the Regulations allow for the performance of a site-specific risk assessment, which takes into account site-specific factors of exposure and risk. The contamination in the groundwater will be addressed through institutional controls (Environmental Covenant and Groundwater Management Zone) for the site and the surrounding region.

Cleanup Action Objectives (CAO)

In keeping with the HSCA Regulations, site-specific Remedial Action Objectives (RAOs) must be established for all plans of remedial action. The Regulations require that DNREC set objectives for land use, resource use, and cleanup levels that are protective of human health and the environment.

The Site is currently zoned for “light industry and commercial use.” The proximity to other heavy industry, light industry, and commercial zoned properties limits the potential for residential zoning or usage in the future. The Site is located partially within a New Castle County WRPA. While there are no public water supply wells within 2 miles of the site, the WRPA is still a resource that needs to be protected. This WRPA area was mapped based upon the aquifer recharge potential of the surface sediments.

REMEDIAL ACTION OBJECTIVES (RAO)

The evaluation of the nature and extent of contamination at the Site included comparing the soil and groundwater analytical data to applicable DNREC Soil and Groundwater Remediation Standards as provided in the DNREC Remediation Standards Guidance under the Delaware Hazardous Substance Cleanup Act (DNREC, 1999). For soil, the criteria applicable to the Site are the Restricted Use Setting, Critical and Non-Critical Resource Area Criteria (DNREC Criteria). A Restricted Use setting is defined in DNREC regulations as ‘a setting where current or future use will be restricted in some way to ensure protection of human health’.

According to Section 8.4(1) of the Regulations, site-specific RAOs must be established for all plans of remedial action. The Regulations provide that DNREC will set objectives for land use, resource use, and cleanup levels that are protective of human health and the environment.

Qualitative objectives describe, in general terms, what the ultimate result of the remedial action, if necessary, will be. The following qualitative objectives are proposed for the site:

- 1) Minimize and control exposure to surface soil at the Site.
- 2) Minimize and control human exposure to impacted groundwater.

These objectives are consistent with the existing use of the Site as two commercial buildings and parking lots, New Castle County zoning policies, state regulations governing water supply, and worker health and safety. The site is located within the Proposed Area for a Groundwater Management Zone (GMZ) for the Delaware City Region. DNREC is currently working on delineating and establishing the GMZ. The GMZ will prohibit the installation of any water wells on or groundwater usage in the region without prior written approval of DNREC.

Quantitative objectives define specific levels of remedial action to achieve protection of human health and the environment. Based on the previously listed qualitative objectives, the quantitative objectives are:

- 1) Prevent human exposure (i.e. future workers, visitors and construction workers) to surface soil (0-2 feet) that contains the substances identified as contributing to the exceedance of the carcinogenic risk target of 1×10^{-5} ; and
- 2) Prevent human exposure to groundwater (i.e. contact, inhalation and ingestion) at the Site.

FINAL PLAN OF REMEDIAL ACTION

Based on the RI completed for the Site, a potentially unacceptable risk to human health exists based on the exposure to surface soil through excavation at the Site, assuming a commercial/industrial (i.e. restricted) setting. The exposure to groundwater, assuming use for domestic purposes, is also not acceptable. In order to address these conditions, DNREC's proposed remedy for the Site includes the following remedial actions:

- Place an Environmental Covenant consistent with the requirements of the July 2005 Uniform Environmental Covenants Act (UECA), 7 Del. C. Chapter 79, Subchapter II. on the property within ninety (90) days following DNREC's adoption of the Final Plan; the Environmental Covenant shall (a) prohibit current and future residential use of the property; (b) prohibit any digging, drilling, excavating, grading, constructing, earth moving, or any other land disturbing activities on the property without the prior written approval of DNREC; and (c) prohibit the installation of any water well on or use of groundwater at the Site without the prior written approval of DNREC, as well as noting the Site's location within a (proposed) GMZ.
- If any buildings or asphalt caps are demolished or disturbed, additional environmental investigation, including sampling, will be required in these areas.
- Maintaining continued access for both the Environmental Protection Agency (EPA) and DNREC personnel for sampling existing monitoring wells or installing additional monitoring wells on the property as required. The location of any new proposed monitoring wells will be discussed with the Site owner prior to being installed.


- The existing monitoring wells or any installed monitoring wells must be maintained in their current locations and disposition.

PUBLIC PARTICIPATION

The Department actively solicited written public comments and suggestions on the Proposed Plan of Remedial Action. The comment period began June 7, 2006, and ended at the close of business June 27, 2006. DNREC received no public comments for the Proposed Plan of Remedial Action for Ion Power during the public participation phase.

DECLARATION

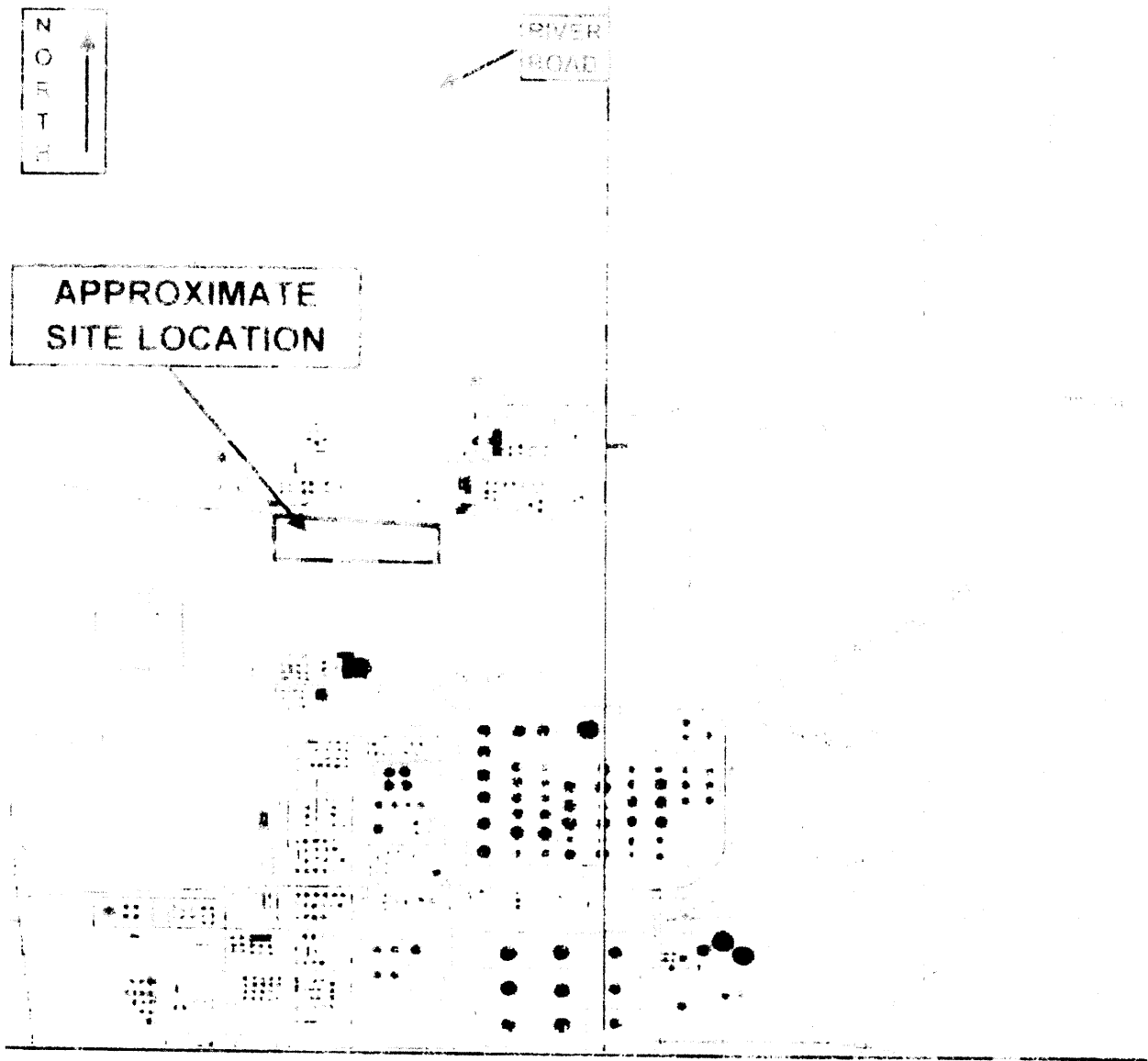
The Final Plan of Remedial Action for the Ion Power Site is protective of human health, welfare and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.


James D. Werner
Director of Air & Waste Management

6/29/06
Date

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Figure 1: Site Location



This location sketch was adapted from the Maptech USGS Topographic Series
Edition 1 0 for Delaware (2001)


FIGURE 1 - SITE LOCATION SKETCH
METACHEM SOUTH PARCEL ION POWER PROPERTY
745 GOVERNOR LEA ROAD
DELAWARE CITY NEW CASTLE COUNTY DELAWARE

Figure 2: Critical Water Use Area in relation to Ion Power



Ion Power Site outlined in Red

Legend

-  New_Castle_Recharge_utm
NCC TAX PARCELS

DNREC
SITE INVESTIGATION &
RESTORATION BRANCH
391 LUKENS DR
NEW CASTLE, DE 19720-2774
302.395.2600

Ion Power Site
in relation to
New Castle County
Water Resource Protection Area

Figure 3: Site Layout and Sampling Locations

