PROPOSED PLAN OF REMEDIAL ACTION

Former DP&L Elsmere Substation Site
DE 1186

August 2001

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

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1.0 INTRODUCTION

This document is the Delaware Department of Natural Resources and Environmental Control-Site Investigation and Restoration Branch's ("DNREC-SIRB") Proposed Plan of Remedial Action ("Proposed Plan") for the Former DP&L Elsmere Substation Site ("Site"). It is based on the results of the previous investigations performed at the Site. This Proposed Plan is issued under the provisions of the Delaware Hazardous Substance Cleanup Act, 7 Del. C. Chapter 91 ("HSCA") and the Regulations Governing Hazardous Substance Cleanup ("Regulations"). It presents DNREC-SIRB's proposed remedial alternative based on an assessment of the potential health and environmental risks posed by the Site.

DNREC-SIRB will provide public notice, and an opportunity for the public to comment on the Proposed Plan in accordance with Section 12 of the Regulations. At the conclusion of the public comment period, DNREC-SIRB will review and consider all of the comments received and then will issue a Final Plan of Remedial Action ("Final Plan"). The Final Plan will designate the selected remedy for the Site. All previous investigations of the Site, the Proposed Plan, the comments received from the public, DNREC-SIRB's responses to those comments, and the Final Plan will constitute the Remedial Decision Record for the Site.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site Setting

The Site is located at the southeastern corner of the intersection of Baltimore Avenue and Northern Avenue, in Elsmere, Delaware (Figure 1). The Site is bounded generally by Baltimore Avenue to the north, Northern Avenue right-of-way to the west, Route 100 to the east, and the Fairground Park and the CSX Transportation property to the south. The 1.017-acre Site is open land with a small shed near the center of the property. The Site is fenced on all sides and there is only one gate for access. The ground surface consists of gravel and an open grass-covered area. The Site topography is relatively flat with a low-lying wetland area to the south, where it borders with the wooded wetland area of Fairground Park and the CSX railroad tracks. The site is zoned commercial, but is located near residential housing.

2.2 Site History

Mary Sission, who sold the property to Baltimore & Philadelphia Railroad on June 9, 1916, originally owned the Site. Delmarva Power & Light Company ("DP & L") acquired the Site on November 9, 1948 and began using it as an electrical substation until the mid 1990's. Historical information on the Site indicated the presence of eleven concrete structures that supported five transformers, three capacitors, and three oil circuit breakers during the operation of the substation. All polychlorinated biphenyl ("PCB") containing equipment was either removed or retrofitted to non-PCB status by 1986. DP&L removed all substation equipment by 1994. A Phase II Environmental Site Assessment was performed in August 1994. Based on the analytical findings, DP&L removed and disposed of 1.2 cubic yards of PCB-contaminated soil in October 1994. The current owner, Marty's Contracting, purchased the Site on June 23,1999. Since then, it has been used for equipment and roll-off storage.

2.3 Previous Investigation

On September 19-20, 1994, DP&L hired Tetra Tech, Inc. ("Tetra Tech") to perform a Phase II Environmental Site Assessment. Soil samples were collected and analyzed for PCBs and Total Petroleum Hydrocarbon ("TPH"). A PCB remedial action level of 10 parts per million ("ppm") the EPA Region III standard at that time, and a TPH action level of 1,000 ppm were implemented during the investigation. A sample from one area contained > 10 ppm of PCBs; therefore, 1.2 cubic yards of contaminated soil were removed from this area and shipped off-site. Samples from two areas, which contained TPH at concentrations of 130 and 190 ppm, were below the action level of 1,000 ppm. Wipe samples of concrete pads were analyzed for PCBs, but none were detected.

Residents in the area of the Site expressed concerns to the Town of Elsmere about the operations of the current owner, Marty's Contracting, and raised the possibility of potential contamination at the Site. The Town requested assistance from DNREC-SIRB regarding the alleged environmental contamination at the Site. DNREC-SIRB requested that, as a past owner, DP&L enter a Voluntary Cleanup Program ("VCP") Agreement to further investigate the Site. DP&L agreed to conduct the required investigations. DP&L's consultant, WIK Associates, Inc. ("WIK"), submitted a work plan for the Remedial Investigation ("RI"), which was reviewed and approved by DNREC-SIRB. RI sampling was performed on September 2000 by WIK. Surface and subsurface soil and groundwater samples were collected and analyzed for volatile and semi-volatile organic compounds, PCBs/pesticides, metals and cyanide. A wetland survey was also performed. A RI Report detailing the findings of the investigation was submitted to DNREC-SIRB. Due to the potential presence of contamination at the Site, DNREC-SIRB required Marty's Contracting to cease land-disturbing activities at the Site, and to maintain the perimeter fence. The roll-offs, which are stored temporarily at the Site, contained at times construction and demolition debris, but no municipal waste and are empty during other occasions. Asphalt and stone were found on the ground surface, but not buried. A slag pile was present at the Site. This type of slag is used in variety of construction settings. DNREC-SIRB sampled the slag pile and hazardous substances were not found.

DNREC-SIRB collected a composite soil sample from the intersection of the Site driveway and Baltimore Avenue to evaluate whether contaminated soil is migrating off-site due to the movement of trucks to and from the property. Another composite surface soil sample was collected from locations off-site along Baltimore and Northern Avenue to obtain a preliminary estimate of the background metal concentrations in the surface soil in the area of the Site.

2.4 Site Investigation Results

The primary media of concern for the Site is surface soil. On the main portion of the Site, arsenic is the contaminant of potential concern. Arsenic concentrations in the surface soil ranged from 2.9 to 17.5 milligrams per kilogram ("mg/kg"). PCBs (Aroclor 1254) were detected in only one sample at a concentration of 0.7 mg/kg. The concentration is below DNREC-SIRB's Uniform-Risk Based Standard ("URS") for restricted use (3.0 mg/kg), but above the unrestricted use standard (0.3 mg/kg). Lead concentrations in the surface soil ranged from 7.7 to 41.1 mg/kg on the main portion of the Site, and are well below the URS for unrestricted use (400 mg/kg).

Surface soil in the low-lying southern portion of the Site contained elevated concentrations of organic materials and showed wetland characteristics. Surface soil at one location in this area showed presence of lead at a concentration of 2,240 mg/kg, which is above DNREC-SIRB's URS for restricted use (1,000 mg/kg). Arsenic and antimony at concentrations of 33.7 and 92.6 mg/kg, respectively, were also detected at this location. DP&L has proposed to remove soil from this area. In the remaining low-lying area, arsenic concentrations ranged from 13.5 to 30.7 mg/kg, and lead at concentrations ranging from 287 to 387 mg/kg. No volatile organic compounds ("VOCs"), semivolatile organic compounds ("SVOCs"), pesticides, or cyanide was detected above DNREC-SIRB's restricted or unrestricted use standards.

In subsurface soil (i.e., soil 2 feet below ground surface), contaminants above DNREC-SIRB's restricted use standard were not detected. Arsenic was detected at concentrations of 1.6 to 3.2 mg/kg.

In groundwater, the only compounds that exceeded DNREC-SIRB's standards were iron and manganese. Benzene at a concentration of 2.1 ug/L was detected in groundwater but the concentration is below DNREC-SIRB's URS standard of 5 ug/L. DNREC-SIRB's standard for iron and manganese are based on aesthetic (taste and odor) properties, not health risks. Additionally, groundwater is not currently being used at the Site or in the general area.

DNREC-SIRB collected a composite soil sample from locations along Baltimore and Northern Avenues in the vicinity of the Site to obtain a preliminary estimate of the background metal concentrations in the surface soil in the area of the Site. Arsenic at 9.2 mg/kg and lead at 112 mg/kg were detected. Other metals detected at low concentrations were nickel, copper, zinc, iron and barium.

DNREC-SIRB collected a composite soil sample from the intersection of the Site driveway and Baltimore Avenue. The soil sample was collected to evaluate whether contaminated soil was migrating off-site due to the truck traffic going in and out of the property. The sample contained arsenic at 12.9 mg/kg and lead at 40.5 mg/kg

A wetland survey found evidence of wetland conditions in the southwestern portion of the Site, and the adjacent wooded area to the south. Wetland conditions were not observed in the main portion of the Site and adjacent properties to the east or west of the Site. Evidence of waste dumping from unknown sources was observed in the wooded wetland area outside the Site, and on the adjacent property to the west. The largest component of surface water runoff from the Site drains toward the low-lying southwest side of the Site, and from there, to the wooded wetland area south/southwest of the Site. This area also receives storm water runoff from up-gradient residential and commercial properties and from the railroad property. DNREC-SIRB will perform an additional investigation in the wooded wetland area outside the Site in the near future to evaluate contamination in that area. This work will be done as a separate site under an agreement with the Town of Elsmere, the owner of the wooded area.

3.0 SITE RISK EVALUATION

The risk posed by the site was evaluated by considering the Contaminants of Potential Concern ("COPCs") at the Site and the potential impact to human health and the environment. The primary media of concern is surface soil. The COPCs for the Site are arsenic and lead in surface

soil; and lead, arsenic and antimony in the low-lying southern wetland portion of the Site. PCBs were was not included as a COPC because PCBs were detected in only one sample and risk calculations indicated cancer risks well below 1.0E-05 for both restricted and unrestricted use of the Site. Risk calculations indicate a total cancer risk of 5.26E-06 and a Hazard Index ("HI") of 0.09 for non-cancerous risk for the restricted commercial use of the Site. For unrestricted use of the Site, the cancer risk calculated is 4.71E-05 and the non-cancerous risk is a HI of 2.44. The cleanup standard under HSCA is 1.0 E-05 for cancer risk and Hazard Index of 1.0 for non-cancer risk. Therefore, the risk posed by exposure to this soil is below the cleanup standard for the commercial use of the Site. The Site is zoned commercial, but is located near residential housing. Contaminated soil from the Site is being "tracked" or dispersed off-site into the residential neighborhood by vehicle traffic at the site. To prevent movement of contaminated soil to the residential neighborhood, remedial measures are necessary.

This risk calculation did not include lead. DNREC-SIRB's restricted use URS for lead is 1,000 ppm and 400 ppm for unrestricted use. At one location, lead concentration exceeded 1,000 ppm. If the soil were excavated as proposed for this location, the maximum lead concentration left at the Site would be 387 ppm, which is below the unrestricted use of 400 ppm.

Subsurface soil (from 2 feet below surface) contamination was not detected above DNREC-SIRB's restricted use URS standard. In groundwater the only compounds that exceeded DNREC-SIRB's URS standard are iron and manganese. However, DNREC-SIRB's URS standard for these compounds are based on aesthetic qualities (taste and odor), and not health. Moreover, groundwater is not currently being used at the Site or in the general area. The residents of the Town of Elsmere are served by public water (Artesian Water Company).

4.0 REMEDIAL ACTION OBJECTIVES

According to Section 8.4 (1) of the Regulations, site-specific Remedial Action Objectives must be established for all Plans of Remedial Action. Objectives should consider current and potential land use, resource use, proximity of human populations, use of surrounding properties, and the level of contamination of surrounding properties. Qualitative objectives describe, in general terms, the ultimate result of remedial action. Quantitative objectives define specific levels of remedial action necessary to achieve protection of public health, welfare, and the environment.

The following objectives have been established by DNREC-SIRB for the Site.

<u>Qualitative Remedial Objectives:</u>

- To restore the Site for commercial use as is consistent with its zoning and the surrounding land uses;
- Prevent movement/dispersion of surface soil to the adjacent residential area;
- Prevent exposure to groundwater;
- Prevent impact of the Site on the adjacent wetlands areas.

Quantitative Remedial Objectives:

Based on the above qualitative Remedial Action Objectives, the following quantitative remedial action objectives were developed:

- Prevent human contact with contaminant concentrations that exceed 1 1.0E-05 cumulative cancer risk and a hazard index of 1.0 for non-carcinogenic compounds.
- Prevent use of groundwater from the Site.
- Prevent migration of contaminated soil from the Site to the adjacent wetland areas.

5.0 PROPOSED PLAN OF REMEDIAL ACTION

Based on DNREC-SIRB's evaluation of the Site information, and the above remedial action objectives, the recommended remedial action for the Site will include the following:

1. A cap consisting of geotextile fabric and crushed stone shall be installed to prevent dispersement of surface soil to the adjacent residential area. This cap shall at a minimum, cover the area of the property that will be used for all Site operations. Site operations shall not take place on any uncapped area. Additional construction activities, including any asphalt paving or building construction, may be allowed on the Site, but only with the prior written approval of DNREC-SIRB.

2. One area of elevated lead, arsenic and antimony concentrations in the low-lying southern wetland portion of the property will be excavated as proposed by DP&L. The Work Plan for this proposal must be approved by DNREC-SIRB.

3. The remedial design will incorporate engineering controls to prevent potential impacts of Site soils due to storm water runoff migration of contaminants to the wetland areas adjacent to the Site.

4. A vegetative cover shall be maintained on the low-lying wetland portion of the Site to prevent off-site migration of soil.

5. The existing perimeter fence and gate at the Site will be maintained until DNREC-SIRB gives written approval for it to be removed.

6. Inspections shall be made on a quarterly basis to ensure that the crushed stone and geotextile fabrics are meeting the objective of preventing contaminated soil from being dispersed off-site.

7. A Deed restriction will be placed on the Site restricting it to commercial land use and prohibiting groundwater use without DNREC-SIRB's approval.

8. A groundwater management zone ("GMZ") will be established which will restrict groundwater withdrawals at this Site. The GMZ will be administered via a memorandum of understanding between DNREC's Division of Air and Waste Management and Division of Water Resources.

6.0 PUBLIC PARTICIPATION

The Department actively solicits public comments or suggestions on the Proposed Plan of Remedial Action and welcomes opportunities to answer questions. Please direct written comments to:

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

Calls should be directed to Mr. Salahuddin at 302-395-2600. The comment period begins Friday, August 24, 2001, and ends Friday, September 14, 2001. Comments and/or requests for a public meeting may be submitted in writing to Qazi Salahuddin, at the above referenced address, by the close of the business day (4:30pm) on Friday, September 14, 2001.

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Figure 1: Site Location Map

Figure 2: Sample Location Map