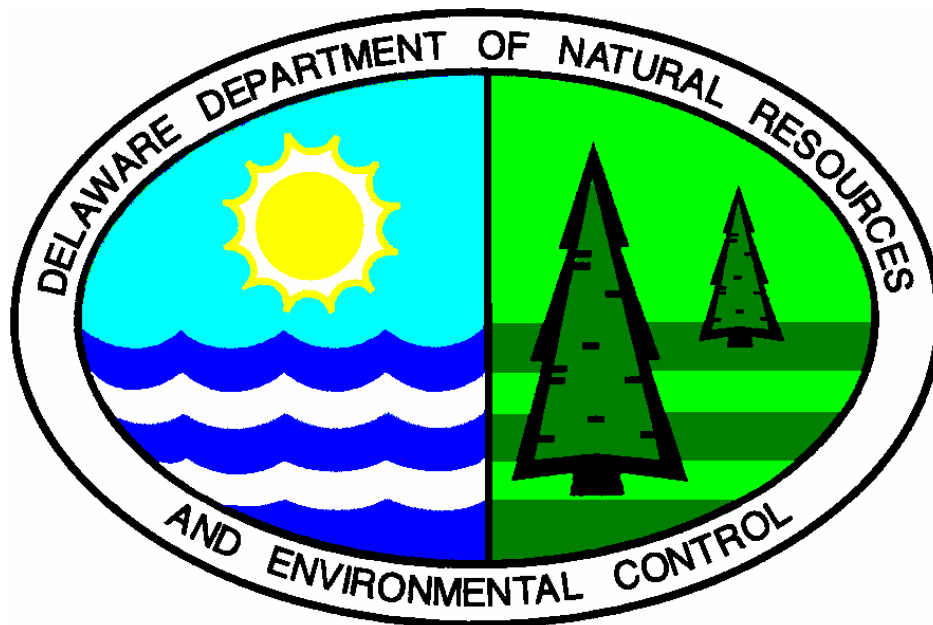


FINAL PLAN OF REMEDIAL ACTION

560 Terminal Avenue
New Castle, DE

DNREC Project No. DE 1123



January 2003

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

The 560 Terminal Avenue property (site) is located approximately ¼ mile west of the Port of Wilmington in New Castle, Delaware. In order to determine the potential for environmental liability prior to the sale of the property, G&L Holdings, Inc. (G&L) entered into the Voluntary Cleanup Program (VCP) under the provisions of the Delaware Hazardous Substance Cleanup Act, 7 Del. C. Chapter 91 (HSCA), as administered by the Site Investigation and Restoration Branch on behalf of the Department of Natural Resources and Environmental Control (DNREC). Through a VCP Agreement, G&L agreed to investigate the potential risks to public health, welfare, and the environment by chemical contamination at the site. G&L contracted WIK Associates, Inc. (WIK) to perform a remedial investigation (RI) of the site.

The purpose of the RI was to: 1) document existing environmental conditions at the site; and 2) determine the level of risk posed by the contaminants, and based upon this analysis, if necessary, evaluate remedial alternatives.

The proposed plan of remedial action (proposed plan) for the 560 Terminal Avenue site was issued for public comment on October 21, 2002, and ended on November 12, 2002. One (1) comment letter was received by the Department prior to the close of the public comment period. The Department responded in writing to the person submitting the comment on December 20, 2002. A public hearing on the proposed plan was not requested.

This document is DNREC's final plan of remedial action (final plan) for the site. It is based on the results of the previous investigations performed at the site and the proposed plan of remedial action for the site dated October 3, 2002. This final plan is issued under the provisions of the HSCA and the Regulations Governing Hazardous Substance Cleanup (Regulations). It presents the Department's assessment of the potential health and environmental risks posed by the site.

This final plan, which designates the selected procedures and stipulations concerning the current and future activities, the proposed plan, comments received from the public, the Department's responses to the comments, and all of the site documents forming the basis of the proposed and final plans, will constitute the remedial decision record.

Section 2.0 presents a summary of the site description and history. Section 3.0 provides a description of the remedial investigation results. Section 4.0 presents a discussion of the remedial action objectives. Section 5.0 presents the final plan. Section 6.0 presents the Director's Declaration.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site Setting

The site is located at the intersection of Terminal Avenue and Pigeon Point Road, approximately ¼ mile west of the Port of Wilmington, in the City of New Castle, New Castle County, Delaware (Figures 1 & 2). It consists of an approximately six-acre parcel of developed, industrial land.

Terminal Avenue borders the site to the north and northeast, Pigeon Point Road to the west, a truck storage depot to the south, and a railroad right-of-way to the southeast. An active asphalt hot mix facility presently occupies the site. The surrounding land use is industrial and commercial, with several federal and state superfund sites within 0.5 miles, including the Halby Chemical superfund site located directly across Terminal Avenue from the site

2.2 Site and Project History

Through a review of historical aerial photographs, United States Geologic Survey topographic maps, historical Sanborn fire insurance maps and city directories, the historical use of the site has been investigated. Based upon the title search, the property has been corporately owned since at least 1872. At that time, and up until 1950, the property that encompasses the site was owned by the Lobdell Car Wheel Company, which manufactured railroad wheels and machinery. Lobdell Car Wheel Company sold the property to the Dover Equipment and Machine Company in 1950. G&L Holdings purchased the company in 1994, leasing the space to Tilcon Delaware, Inc. to operate the asphalt hot mix plant.

Three underground storage tanks were removed in 1992, including two gasoline tanks (one 10,000 gallon and one 3,000 gallon), and one 10,000 gallon diesel fuel tank. Contaminated soil associated with the tank removal was excavated and bioremediated onsite. The soil was treated to below DNREC action levels for underground storage tank releases and transported for use as fill in Dover, Delaware. The DNREC Underground Storage Tank Branch issued a no further action letter for the site in 1994.

WIK Associates, Inc. conducted a Phase I environmental site assessment of the site in 1993, which consisted of a historical review of the property and surrounding area. It recommended further investigation of the property. A Phase II site investigation was conducted in 1994 and consisted of soil sampling, asbestos sampling, and the sampling of two monitoring wells that were installed by the U.S. EPA in 1993 as part of the ongoing RI of the nearby Halby Chemical site. Results from the soil sampling indicated the presence of low concentrations of petroleum hydrocarbons and the chlorinated volatile organic compounds (VOCs), trichloroethene (TCE) and tetrachloroethene (PCE). TCE and PCE were detected in shallow well MW-4 at 9,200 µg/l and 66 µg/l, respectively, well above the respective U.S. EPA Maximum Contaminant Levels (MCLs) for Drinking Water of 5 µg/l. Low concentrations of the gasoline components toluene and ethylbenzene were detected in groundwater from MW-2.

A Phase III site investigation was conducted later in 1994 by WIK in an effort to assess the magnitude and extent of contaminants detected during the Phase II. These sampling results indicated that only low levels of petroleum hydrocarbons remained in onsite soils, at concentrations below action levels. TCE was found in soils near the TCE storage area and near monitoring well MW-4. It was also detected in groundwater at, and downgradient from, the TCE storage area. The observed concentrations of TCE suggested that further action was warranted.

3.0 INVESTIGATION RESULTS

WIK conducted a RI for the site in 2001 for purposes of assessing present environmental conditions of the site, and to evaluate the extent of the TCE contamination. Specific goals of the

investigation were to identify the possible presence of non-aqueous phase liquid TCE (i.e., free product), assess the horizontal extent of groundwater impacts, determine the depth and configuration of the underlying clay confining unit, and determine the extent of soil contamination in the unsaturated zone.

Surface and subsurface soil samples were collected using direct-push technology, and were submitted for laboratory analysis of volatile and semivolatile organic compounds (VOCs and SVOCs), pesticides, polychlorinated biphenyls (PCBs), and cyanide. Groundwater samples were collected from five existing monitoring wells and one piezometer, and were submitted for the same suite of chemical analyses as the soil samples, plus metals. As the property is presently zoned industrial-commercial, and the surrounding land use is zoned similarly, the analytical results were compared to the DNREC Uniform Risk-Based Remediation Standards (URS) in a non-critical water resource area, using the restricted use (i.e., non-residential) risk scenario as a screen in order to determine potential contaminants of concern (COCs) for further risk evaluation.

No SVOCs, PCBs, nor cyanide were detected in any of the soil samples. Only trace concentrations of the pesticides 4-4'-DDE (15 µg/kg) and 4-4'-DDT (28 µg/kg) were detected in one soil sample, but the observed concentrations were several orders of magnitude below their respective restricted use, as well as unrestricted use, URS values. Three chlorinated VOCs, cis-1,2-dichloroethene (cis-1,2-DCE), TCE and PCE, were detected in several soil samples. None of the observed concentrations of the three compounds exceeded the respective restricted use URS values, or even the unrestricted use URS values. The highest concentrations were cis-1,2-DCE at 70 µg/kg (restricted use URS of 2,000 mg/kg), TCE at 1,500 µg/kg (URS of 520 mg/kg), and PCE at 630 µg/kg (URS of 110 mg/kg). Complete analytical results from the RI are listed in table format in Appendix A.

No SVOCs, PCBs, nor pesticides were detected in any of the groundwater samples. Cis-1,2-DCE (up to 61 µg/l in MW-4), TCE (up to 2,900 µg/l in MW-4), and PCE (up to 110 µg/l in GP-17) were detected in several of the monitoring wells. The respective MCLs for these compounds are 70 µg/l, 5 µg/l and 5 µg/l. Total cyanide was detected in SMW-6 at 60 µg/l (URS of 200 µg/l), while thiocyanate, a contaminant associated with the Halby site, was detected in two wells at a concentration up to 2,300 µg/l (URS of 370 µg/l). High concentrations of iron (up to 29,400 µg/l) and manganese (up to 744 µg/l) were also detected in groundwater from several wells above their respective URS values of 300 µg/L and 50 µg/L.

A cumulative, site-specific soil risk assessment indicated that the cumulative risks associated with site soil were at a carcinogenic risk of 5.89×10^{-9} for restricted use, and 5.28×10^{-8} for unrestricted use, with a non-carcinogenic Hazard Quotient of 0 for both scenarios. These risks are below the HSCA action level of 1×10^{-5} for carcinogenic risk and a Hazard Quotient of 1.0 for non-carcinogenic risks. Thus, the soil does not pose an unacceptable risk to human health even if the site were to be used for residential development.

Based upon initial screening, TCE, PCE, thiocyanate, iron and manganese were included in the risk assessment for groundwater. The cumulative non-carcinogenic Hazard Quotient was 0.56, which is below the HSCA threshold of 1.0. The cumulative carcinogenic risk was calculated at 7.7×10^{-4} , above the HSCA threshold of 1×10^{-5} .

At the present time there are no receptors for the contaminated groundwater, as the area surrounding the Port of Wilmington, which includes the subject site, are served with public water. In addition, the 560 Terminal Avenue property is located within the Zone B of the Halby Chemical and Environs groundwater management zone. Within this Zone B, no public or domestic water supply wells are permitted either in the Columbia or Upper Potomac Aquifers.

Groundwater flows away from the site, as measured using water level measurements from exiting onsite monitoring wells and piezometers, and northeastward underneath the heavily contaminated Halby Chemical Superfund site.

4.0 REMEDIAL ACTION OBJECTIVES

According to Section 8.4 (1) of the Regulations, site-specific remedial action objectives (RAO) must be established for all plans of remedial action. The Regulations provide that DNREC 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 final results of the remedial action, if necessary, should be. The following qualitative objectives are determined to be appropriate for the site:

1. Prevent exposure to groundwater contaminated with PCE and TCE; and
2. Continue the use of public water for all purposes to the surrounding community.

These objectives are consistent with the current use of the site as an industrial facility in an area of mixed industrial/commercial use in an urban setting, New Castle County zoning policies, state regulations governing water supply and worker health and safety.

Based on the qualitative objectives, the quantitative objectives are:

- Prevent human exposure to groundwater contaminated with chlorinated solvents whose concentrations exceed the following U.S. EPA MCLs: TCE 5 µg/l and PCE 5 µg/l; and

5.0 FINAL PLAN OF REMEDIAL ACTION

Based on DNREC's evaluation of the site information and the above remedial action objectives, the recommended remedial actions for the site consist of the following activities as described below:

1. Placement of a deed restriction on the property that prohibits the installation of any water well on, or use of groundwater at, the site without the prior written approval of DNREC;
2. Ensure that the site will remain a part of the existing Halby Chemical and Environs Groundwater Management Zone; and

3. In the event that the land use changes at the facility, a soil investigation will be required at the time of facility closure to ensure areas where asphalt materials are currently stored do not present a risk to human health and the environment.

6.0 PUBLIC PARTICIPATION

The Department actively solicited public comments and suggestions on the proposed plan of remedial action. The comment period began on October 21, 2002, and ended at the close of business November 12, 2002. One (1) comment letter was received by the Department prior to the close of the public comment period. The Department responded in writing to the person submitting the comment on December 20, 2002. A public hearing on the proposed plan was not requested.

7.0 DECLARATION

This final plan of remedial action for the 560 Terminal Avenue site is protective of human health, welfare and the environment, and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

John Blevins
Director, Division of Air and Waste

Date

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Figures 1 & 2 from Remedial Investigation Report

Prepared by WIK Associates, Inc., October 2001.

Figure 1: Site Location

Figure 2: Surrounding Properties and Groundwater Flow Direction

Figure 3: Sampling Locations

APPENDIX A