FINAL PLAN OF REMEDIAL ACTION

Chestnut Hill Plaza Site
Newark, DE

DNREC Project No. DE-1391

SCANNED
FEB 19 2009
File# 1391 B9

February 2009

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

This Final Plan of Remedial Action (Final Plan) for the Chestnut Hill Plaza Site presents the Department of Natural Resources and Environmental Control's (DNREC's) determination that limited environmental contamination remains in the soils beneath the building and in shallow groundwater a portion of the site.

DNREC issued public notice of the Proposed Plan for the Chestnut Hill Plaza Site on January 4, 2009 and opened a 20-day public comment period. The Proposed Plan requires:

- The placement of a restrictive environmental covenant consistent with the Uniform Environmental Covenant Act (UECA), restricting future site development to non-residential uses and prohibiting excavation beneath the existing dry cleaner without prior DNREC approval.
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- A Groundwater Management Zone (GMZ) will be placed on the site, prohibiting installation of wells and use of shallow groundwater without prior approval of DNREC Division of Water Resources and Division of Air and Waste Management.
-
- A limited groundwater monitoring program for a period of no less than three years, to be conducted on a semi-annual sampling period, to verify that residual chlorinated hydrocarbons do not affect human health or the environment.
-
- An Operations and Maintenance (O&M) Plan, documenting the groundwater monitoring plan and any future inspection activities, will also be required. Current and future owners of the property will be responsible for implementation of all aspects and costs of the approved remedy, including all requirements of the final plan, the approved O&M Plan, and adherence to the requirements and conditions established in the Uniform Environmental Covenant for the site.

- The site will be eligible for a Certificate of Completion of Remedy once the Environmental Covenant is in place.

There were no comments or questions from the public regarding the proposed plan. Therefore, the Proposed Plan was adopted as the Final Plan (see attached).

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

Kathleen Stiller

2/13/09

Kathleen Stiller
Division of Air and Waste Management

Date

LJJ:tlw; LJJ09006.doc; DE 1391 II B 9

SCANNED
JAN 07 2009
File# 1391 B-8

PROPOSED PLAN OF REMEDIAL ACTION

Chestnut Hill Plaza Site
19 Chestnut Hill Road
Newark, DE

DNREC Project No. DE-1391

December 2008

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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PROPOSED PLAN OF REMEDIAL ACTION

Chestnut Hill Plaza Site
19 Chestnut Hill Road
Newark, DE

DNREC Project No. DE-1391

December 2008

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

16 Dec 2008

James D. Werner, Director
Division of Air and Waste Management

Chestnut Hill Plaza

What is the *Chestnut Hill Plaza* Site? The site is a single parcel that has been developed as a commercial retail shopping center with buildings totaling approximately 186,000 square feet and asphalt paved parking covering the majority of the remaining area of the site. Chestnut Hill Plaza is located at 19 Chestnut Hill Road (DE Route 4) in Newark, Delaware. The property is a Voluntary Cleanup Program (VCP) Site.

Tax Parcel Number: 11-006.20-109
Nearest major intersection: Marrows Road and Chestnut Hill Road (DE Route 4)
Area: 15.5 acres
Zoning: Commercial Regional
Nearest surface water body: Christina River, approximately 2 miles south.
Shallow groundwater at the site flows toward the Christina River.
The predominantly flat site is not within the 100-year flood plain.
Surrounding land use is residential and commercial.
The site and surrounding areas receive public water, as well as sanitary sewer service.

What happened at the *Chestnut Hill Plaza* Site? The site was mostly undeveloped until the shopping center was constructed in the mid-1970s. The surrounding area was primarily agricultural until residential development started in the 1950's.

The site has undergone several investigations, including a Phase I Environmental Site Assessment, a Limited Subsurface Investigation, and a Remedial Investigation and Supplemental Remedial Investigation. The site is located in a primarily residential and commercial area ½-mile southeast of Newark, Delaware. Portions of the single-family residential neighborhood of Scottfield border the site to the south and east. Commercial businesses border the site across Marrows Road and Chestnut Hill Road to the west and north.

What is the problem at the *Chestnut Hill Plaza* Site? Ten Bears Environmental, L.L.C. performed a Remedial Investigation/Feasibility Study at the Site in 2006 and 2007. Samples collected during this assessment revealed elevated concentrations of metals, pesticides, and volatile organic compounds (VOCs). The site was entered into the Voluntary Cleanup Program (VCP) to further evaluate environmental impacts previously identified at the Site and identify potential remedial action to protect human health and the environment, if warranted.

The Contaminants of Concern at the site are metals, the pesticide dieldrin, the chlorinated solvent volatile organic compounds (VOCs) tetrachloroethene or "perchloroethene" (PCE), trichloroethylene (TCE), cis-1,2 Dichloroethylene (cis-1,2 DCE), vinyl chloride; and chloroform. During the investigation, the shopping center required the dry cleaning tenant to stop using chlorinated solvents at this location.

The results of the risk assessment portion of the evaluation indicated that the current site development scenario meets DNREC risk levels, due to the near complete coverage of the site with buildings and pavement that eliminates direct contact exposure and the current lack of groundwater receptors. However, potential carcinogenic risk associated with future development of the site involving removal of the existing site cover or potential use of site groundwater for human consumption exceeded the acceptable level of 1×10^{-5} (or 1 in 100,000). The estimated carcinogenic risk associated with direct-contact soil exposure after removal of the site cover was 1.6×10^{-5}. The risk would be reduced below acceptable levels upon removal of soils in the vicinity of one soil sample, VP-6 (1.6'), located directly beneath the dry cleaner tenant space. The estimated risk associated with ingestion of groundwater was 6.16×10^{-4}. All other cancer risk and hazard index (for non-carcinogens) estimates indicated acceptable levels.

Although iron and manganese were detected in groundwater at concentrations exceeding applicable URSs, these values are based on Secondary Maximum Contaminant Levels (SMCLs) and refer to aesthetic properties of the water such as taste, odor, and color and do not represent human health risks.

Soil gas monitoring points were placed within and in the vicinity of the dry cleaning tenant space to assess the potential presence of elevated concentrations of PCE-related solvents in soil gas. Soil gas samples were collected for laboratory analysis from these monitoring points. Due to the detection of elevated concentrations of PCE-related solvents in on-site active soil gas samples, an off-site investigation was developed to collect additional soil gas samples at nearby off-site locations anticipated to encounter the most elevated concentrations of soil gas. These locations consisted of the immediately adjoining residences in the direction of groundwater flow from the source location. Assessment of the potential for vapor intrusion based on soil gas sampling did not indicate an unacceptable risk to site personnel or nearby residents.

What does the owner want to do at the *Chestnut Hill Plaza* Site? The owner of the property, Chestnut Hill Plaza Holdings of New Castle County, plans to maintain the present retail shopping center on the site.

There are presently no plans for site redevelopment.

How does DNREC plan to clean up the *Chestnut Hill Plaza* Site? Based on the 2007 RI/FS Report, DNREC has required the placement of a restrictive environmental covenant consistent with the Uniform Environmental Covenant Act (UECA), restricting future site development to non-residential uses and prohibiting excavation beneath the existing dry cleaner without prior DNREC approval. A Groundwater Management Zone (GMZ) will be placed on the site, prohibiting installation of wells and use of shallow groundwater without prior approval of DNREC Division of Water Resources and Division of Air and Waste Management. DNREC

will also require a limited groundwater monitoring program for a period of no less than three years, to be conducted on a semi-annual sampling period, to verify that residual chlorinated hydrocarbons do not affect human health or the environment. An Operations and Maintenance (O&M) Plan, documenting the groundwater monitoring plan and any future inspection activities, will also be required. Current and future owners of the property will be responsible for implementation of all aspects and costs of the approved remedy, including all requirements of the final plan, the approved O&M Plan, and adherence to the requirements and conditions established in the Uniform Environmental Covenant for the site.

After completion of the public comment period, DNREC will issue a Final Plan of Remedial Action. The site will be eligible for a Certificate of Completion of Remedy once the Environmental Covenant is in place.

What are the long term plans for the Site after the cleanup? DNREC will require environmental monitoring on the property to include no less than 3 years of semi-annual groundwater monitoring. At present, quarterly groundwater monitoring has been ongoing for 1 ½ years, and laboratory results indicate that the condition of groundwater at the site has stabilized.

The results of the RIFS indicate limited environmental conditions of concern at the site. There is some potential for future exposure, if the proposed configuration or use of the site were to be modified. This potential will require the placement of an environmental covenant on the property limiting the site to non-residential use, prohibiting any digging under the location of the dry cleaning establishment, and prohibiting installation of groundwater wells for drinking water purposes.

LJJ:tlw; LJJ08021.doc; DE 1391 II B 8

This location sketch was adapted from a 2007 aerial photo obtained from the Delaware DataMIL Online Map Lab

FIGURE 1 - SITE LOCATION SKETCH

CHESTNUT HILL PLAZA

CITY OF NEWARK

NEW CASTLE COUNTY, DELAWARE

DATE:	8/15/2008	JOB NUMBER:	06-549.A
DRAWN BY:	JPG - Ten Bears Environmental, L.L.C.	SCALE:	1 inch = approximately 1,100 feet
CHECKED BY:	RCG - Ten Bears Environmental, L.L.C.	FIGURE NO:	1
FILE NO:	06-549.A-Proposed Plan Fig	SHEET	1 OF 1

Figure 2

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

The complete file on the site including a Site Specific Assessment and a Preliminary Risk Assessment is available at the DNREC office, 391 Lukens Drive in New Castle. Most documents are also found on www.DNREC.state.de.us/dnrec2000/Divisions/AWM/sirb

The 20-day public comment period begins on January 5, 2009 and will close on January 26, 2009. Please send written comments to the DNREC office or call Larry Jones, project manager, at:

302-395-2600.

Glossary
of Terms Used in this Proposed Plan

Ten Bears Environmental, L.L.C.	A private environmental consulting company that conducted the Remedial Investigation/Feasibility Study for the property owner.
Voluntary Cleanup Program	
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.
Contamination	The introduction of harmful or hazardous matter into the environment
Exposure	Coming into contact with a substance through inhalation, ingestion, or direct contact with the skin; may be acute or chronic
Final Plan of Remedial Action	DNREC's plan for cleaning up a hazardous site after it has been reviewed by the public
Ground Water Management Zone	A geographical area where DNREC restricts drilling for ground water because it is contaminated
Chestnut Hill Plaza	A 15.5-acre parcel of land that is the subject of this Plan that will continue to be a commercial retail center.
TCE	Trichloroethylene (TCE) is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers.
PCE	Tetrachloroethylene is a manufactured chemical used for dry cleaning and metal degreasing.
Preliminary Risk Assessment	A quantitative evaluation of only the most obvious and likely risks at a site
Proposed Plan of Remedial Action	A plan for cleaning up a hazardous site submitted by DNREC and subject to public comments
Risk	Likelihood or probability of injury, disease, or death
Site Specific Assessment	Field sampling and evaluation of a site financed by a grant to DNREC from the US EPA
Soil Management Plan	A written plan specifying how potentially contaminated soil material at a site will be sampled, evaluated, staged, transported and disposed of.
Uniform Environmental Covenants Act (UECA)	A standardized form of a land use restriction that is recorded on the deed and runs with the land.

What is a *Proposed Plan?*

A Proposed Plan of Remedial Action (Proposed Plan) is a summary of how DNREC intends 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 and the intended remedy. It is not meant to be an engineering design document. 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://www.dnrec.state.de.us/dnrec2000/Divisions/AWM/sirb/sitefiles.asp.

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.