

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

**PROPOSED PLAN OF REMEDIAL ACTION**



**Former Dover Ice Plant Site**  
**Dover, DE**

**DNREC Project No. DE-1110**

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This proposed plan of remedial action (proposed plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) preferred cleanup alternative for the remediation at the Former Dover Ice Plant site in Dover. For site-related reports and more information, please see the public participation section of this document.

The purpose of the proposed plan is to provide specific information about the soil and groundwater 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 will provide notice to the public and an opportunity for the public to comment on the proposed plan. At the comment period's conclusion, DNREC will review and consider all of the comments received and then will issue a final plan. The final plan shall designate the selected remedy, if required, for the site. All investigations of the site, the proposed plan, comments received from the public, DNREC's responses to the comments, and the final plan will constitute the Remedial Decision Record.

This proposed plan summarizes the March 1998 Phase I Environmental Assessment, the October 2000 Remedial Investigation (RI) report, the May 2001 Focused Feasibility Study and the administrative record file upon which this proposed plan is based. Copies of these documents can be obtained or viewed at locations listed at the end of this document.

**DNREC's proposed remedy is preliminary and a final decision will not be made until all of the comments are considered. The final remedy selected could differ from the proposed remedy based on DNREC's responses to comments.**

# INTRODUCTION

The Former Dover Ice Plant (site) is comprised of approximately 2.6 acres of land located at 645 West North Street in the city of Dover, Kent County, Delaware (Kent County tax parcel number ED-05-076-12.04-0.800-000). The site is bounded to the north by vacant land and a city of Dover municipal service yard, to the south by West North Street and farmland, to the east by Conrail railroad tracks, and to the west by single and multi-family dwellings (Figure 1). The site has been used for commercial and industrial purposes since the early 1900s and was purchased by the current owner, J. Fran Dell, Inc., in 1998. The site was vacant for about 10 years prior to the purchase and is currently vacant. J. Fran Dell Inc., 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 Delaware Department of Natural Resources and Environmental Control-Site Investigation and Restoration Branch (DNREC). Through a VCP Agreement, the site owner agreed to investigate the potential risks posed to the public health, welfare, and the environment at the site by performing a Remedial Investigation (RI) and contracted Tetra Tech, Inc. to perform the RI.

## SITE DESCRIPTION AND HISTORY

The site has been used for commercial and industrial purposes since the early 1900s. Past uses include a whiskey distillery, an apple butter and fruit juice manufacturing plant, a cold storage warehouse/ice plant, and a municipal electric generator plant. The site was vacant for approximately 10 years prior to being purchased by J. Fran Dell, Inc. in 1998. Land use in the vicinity of the site is both residential and commercial/industrial.

## INVESTIGATION RESULTS

Based on a review of all the environmental investigations conducted at the site, the analytical results indicated that several semi-volatile organic compounds (SVOCs) and metals were detected in the surface and subsurface soil above their respective unrestricted or restricted use Uniform Risk-based Standard (URS) values as indicated in the following tables:

### SURFACE SOIL

<u>Contaminant</u>	<u>RME Concentration*</u> (mg/kg)	<u>URS for Unrestricted Use</u> (mg/Kg)	<u>URS for Restricted Use</u> (mg/Kg)	<u>Default Natural Background Concentration</u> (mg/kg)
benzo(a)anthracene	6.15	0.9	8	
benzo(a)pyrene	4.95	0.09	0.8	
benzo(b)fluoranthene	6.61	0.9	8	
benzo(k)fluoranthene	2.71	9	78	
indeno(1,2,3 cd)pyrene	3.74	0.9	8	
dibenz(a,h)anthracene	1.4	0.09	0.8	
Arsenic	3.6	0.4	4	11
Iron	11,807	2,300	61,000	3,000-22,000
Manganese	171	160	4,100	60-350

\*RME –Reasonable Maximum Exposure Concentration calculated as the 95% Upper Confidence Level (UCL) of the arithmetic mean of contaminants detected at the site

## SUBSURFACE SOIL

<u>Contaminant</u>	<u>Maximum Concentration*</u> (mg/kg)	<u>URS for Unrestricted Use</u> (mg/Kg)	<u>URS for Restricted Use</u> (mg/Kg)	<u>Default Natural Background Concentration</u> (mg/kg)
benzo(a)anthracene	2.1	0.9	8	
benzo(a)pyrene	2.4	0.09	0.8	
benzo(b)fluoranthene	3.2	0.9	8	
indeno(1,2,3 cd)pyrene	2.9	0.9	8	
Arsenic	2.4	0.4	4	11
Iron	8,760	2,300	61,000	3,000-22,000

\*RME –Reasonable Maximum Exposure Concentration calculated as the 95% Upper Confidence Level (UCL) of the arithmetic mean of contaminants detected at the site

These SVOCs and metal contaminants detected in soil were retained as the contaminants of concern (COC) for the subsequent risk assessment. Arsenic was detected in both surface and subsurface soils at concentrations that were within the range of typical background concentrations for Delaware soil. In addition Diesel Range Organics (DRO) was detected in subsurface soil in the area of previous aboveground heating oil (Area C- see Figure 2) at a concentration of 6,800 mg/kg which is above DNREC's action level of 1,000 mg/kg.

In groundwater, three volatile organic compounds (VOCs) (acetone, toluene, and xylene) were detected well below their respective URS for tap water. Trace concentrations of four SVOCs (diethylphthalate, di-n-butylphthalate, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate) were detected well below URS values for tap water.

### SITE RISK EVALUATION

Risk associated with exposure to soil at the site was assessed using DNREC's Site-Specific Standard Calculator for Multiple Analytes. Risk calculations for surface soil contaminated with certain metals and SVOCs showed a carcinogenic risk of 9.18E-05 and a non carcinogenic risk of Hazard Index (H.I) 0.52 based on unrestricted land use. The carcinogenic risk is above DNREC's cleanup standard of 1.0 E-05.

Risk calculations for subsurface soil also contaminated with certain metals and SVOCs showed a carcinogenic risk of 3.68E-05 and a non carcinogenic risk of Hazard Index (H.I) 0.50 based on unrestricted land use. The carcinogenic risk is above DNREC's cleanup standard of 1.0 E-05. Subsurface soil in Area C exceeded the DNREC's action level for Diesel Range Organics (DRO). The result of the risk evaluation indicates that remedial actions will be necessary soils at the site.

In groundwater certain VOCs and SVOCs were detected at concentrations well below DNREC's URS and do not pose a risk to human health and the environment. In addition groundwater beneath the site and the vicinity is not presently being used as a drinking water source. There is no complete pathway for exposure to groundwater or surface water relating to any potential ecological receptor.

## REMEDIAL ACTION OBJECTIVES

The following qualitative objectives are determined to be appropriate for the site:

- Prevent human exposure to contaminated soil.

This objective is consistent with the future proposed use of the site as a school and for commercial purpose, Kent County zoning policies, and state regulations governing water supply, and worker health and safety.

Based on the qualitative objectives, the quantitative objectives are:

- Prevent human exposure to soil contaminated with SVOCs and metals that would result in a carcinogenic risk above  $1.0E-05$  assuming an unrestricted future land use.

## PROPOSED PLAN OF REMEDIAL ACTION

Based on DNREC's evaluation of the site information, which includes current and past environmental investigations, historical information and the above remedial action objectives, three alternatives were evaluated: no action; capping the entire site with selective excavation in hot spot areas; and removal of all contaminated soil. It was determined, based on the contamination present at the site, that capping and selective soil removal in hot spot areas is the preferred remedy per the following requirements:

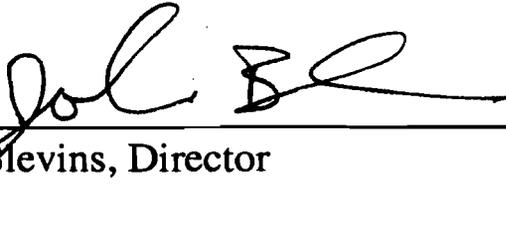
- A cap shall be installed to prevent exposure to contaminated surface soil at the site as proposed in conceptual site development plan submitted with the feasibility study (FS) dated May 2001 and depicted in the attached figure 2. The development plan proposed an asphalt parking area of 3,445 square yards and the existing and proposed buildings as the cap. A detailed development plan along with any modifications must meet the remedial objective of capping the site and should be submitted within 60 days following DNREC's adoption of the final plan for DNREC's review and written approval prior to implementation.
- Contaminated soil located in the former aboveground waste oil tank area depicted in the attached figure 2 as Area C shall be excavated and disposed at a disposal/treatment facility. The contaminated soil is estimated to be 45 cubic yard with the estimated dimensions of 32'x 12'x 3'. The actual volume may vary and a work plan for the excavation should be submitted for DNREC's review and written approval within 60 days following DNREC's adoption of the final plan.
- A deed restriction shall be placed within sixty (60) days following DNREC's adoption of the final plan for the site prohibiting any land-disturbing activities at the site without prior written approval of DNREC.
- An Operation and Maintenance (O&M) Plan shall be established and implemented, detailing the procedures and practices including regular inspections to minimize the potential for disturbing the cap and to promote the long-term integrity of the cap, 30 days following the completion of the remedial action including capping and excavation.

**PUBLIC PARTICIPATION**

The Department is actively soliciting written public comments and suggestions on the proposed plan of remedial action. The comment period begins March 29, 2004, and ends at the close of business (4:30 p.m.) April 19, 2004.

If you have any questions or concerns regarding the Former Dover Ice Plant site, or if you would like to view reports or other information regarding this site, please contact the project manager, Qazi Salahuddin, 391 Lukens Drive, New Castle, Delaware 19720 or at 302.395.2600.

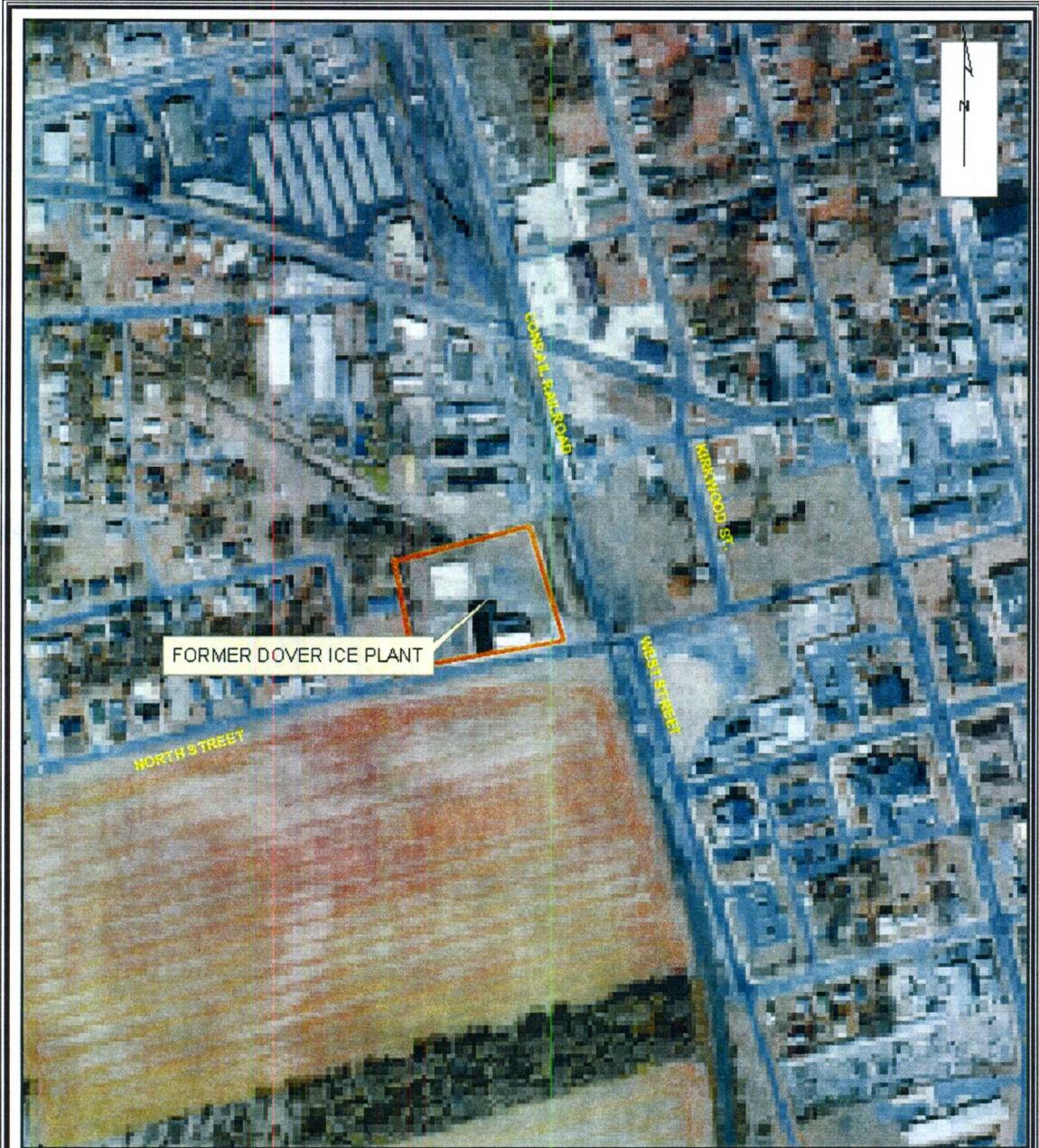
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John E. Blevins, Director

3/18/04

Date



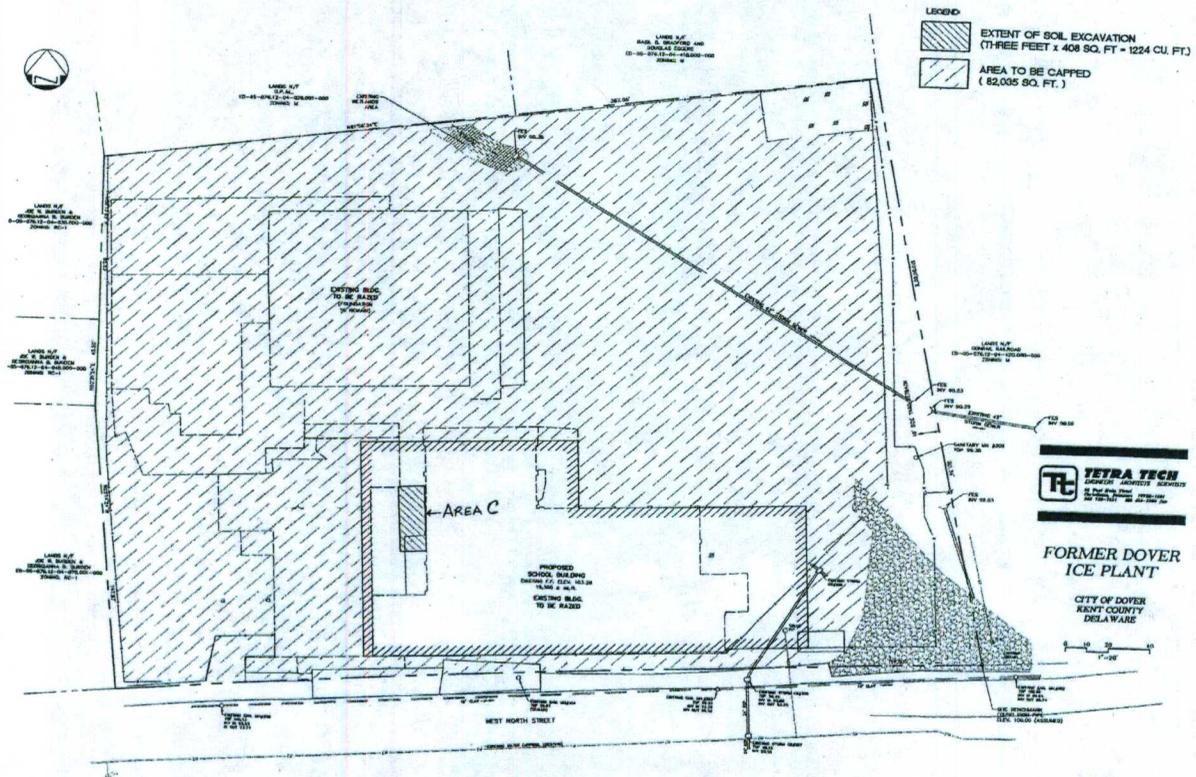
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SITE



**FIGURE 1  
SITE LOCATION MAP  
FORMER DOVER ICE PLANT  
DOVER, DE**



**Figure 2**  
**Proposed Area of Capping and Soil Excavation**  
**Former Dover Ice Plant, Dover, Delaware**