

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

SOIL FINAL PLAN OF REMEDIAL ACTION



JANUARY 2007

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**J.G. Townsend Frozen Foods Site
Soil Contamination
Georgetown, Delaware**

DNREC Project No. DE-0208

This Final Remedial Action Plan (Final Plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) preferred cleanup alternative for the remediation for the soil contamination at the J.G. Townsend Frozen Foods site (Site) in Georgetown, 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: 1) specific information about the soil contamination present at the Site, 2) the cleanup alternatives DNREC has considered for the soil contamination, and 3) the preferred remedial action for the Site. A separate Proposed Plan will be developed for the groundwater contamination present at the Site and the adjoining sites. In addition, as described in Section 12 of the Delaware Regulations Governing Hazardous Substance Cleanup (the Regulations), DNREC provided notice to the public and an opportunity for the public to comment on the Proposed Plan. During the comment period from December 11, 2006 to January 2, 2007, DNREC did not receive any comment on the Proposed Plan, therefore, the proposed plan has been adopted as the Final Plan.

This Final Plan summarizes the Remedial Investigation Report revised March 2004, and the administrative record file upon which this Final Plan is based. Copies of these documents can be obtained or viewed at locations listed at the end of this document.

INTRODUCTION

The Site is currently owned by SAW, Inc. and is comprised of two parcels of land separated by Pepper Street. The main parcel (consisting of tax parcel numbers 1-35-14.20-112(UB1), 113(UB2) and 116(UB1) and herein referred to as the “Frozen Foods site”) is approximately four acres in area (Figure 1).

The other parcel (tax parcel number 1-35-14.16-55 and herein referred to as the “Fuel Depot Site”), which is approximately 0.4 acres in size, was formerly used for fuel storage and is currently unoccupied.

SAW, Inc. entered into the Voluntary Cleanup Program (VCP) for the Site under the provisions of the Delaware Hazardous Substance Cleanup Act (HSCA), 7 Del. C. Chapter 91 in October 2002 to conduct a remedial investigation (RI) of the Site (Frozen Foods and Fuel Depot), in preparation for the potential transfer of the property. SAW, Inc. contracted Ten Bears Environmental, L.L.C. (Ten Bears), a HSCA-approved environmental consulting company, to perform the RI.

The Fuel Depot Site was then made into a separate operable unit of the original site (OU-1). Based on the results of the RI, DNREC has required further evaluation of OU-1. Therefore, this Proposed Plan only applies to the Frozen Foods site (Site).

SITE DESCRIPTION AND HISTORY

The Site is located at 316 North Race Street in Georgetown, Delaware (See Figure1) in a residential/commercial area. Most of the Site buildings are used for the vegetable packaging operation and are grouped together on the southern portion of the Site. A vehicle/equipment maintenance building is located at the northern end of the Site. The Site is currently used for fresh-freezing and packaging vegetables. The process involves cleaning, processing and freezing vegetables and then placing the vegetables in cold storage at the Site. There is no storage of pre-process product occurring on the Site. The closest water body to the Site is Savannah Ditch which is located approximately ½ mile to the northeast of the Site.

According to the historical information, the Site was developed some time before 1904 as a vegetable processing and packaging facility. The Calhoun & Jones Tomato Cannery was present at the Site from 1904 to 1910. J.G. Townsend began operating the Site from some time between approximately 1910 and 1919. The Site was reportedly operated as vegetable cannery until the 1960's when the process transitioned from canning to frozen vegetables.

Residences are located to the north of the Site. A Conrail Railroad track and undeveloped land is located to the east of the Site. Georgetown Coal Gas Site, a Hazardous Substance Cleanup Act (HSCA) site (DE-0188), is located to the southeast of the Site. Georgetown Cleaners, a HSCA site (DE-0113) is located to the southwest of the Site across North Race Street. Residences and commercial buildings are located west and northwest of the Site across North Race Street.

Site Investigation History

Two gasoline underground storage tanks were removed from the Site in 1998. Petroleum contaminated soil was removed from the Site and properly disposed. The DNREC Tank Management Branch (TMB) requested that a hydrogeologic investigation be conducted. TMB concurred with the results of the investigation that indicated that the Site required no further action. On July 28, 2006, TMB issued a no further action letter for the Site.

In May 2003 (revised March 2004), Ten Bears Environmental, LLC a HSCA certified consulting firm completed a Remedial Investigation (RI) for the Site. The report included a discussion of the presumed remedial alternatives. This investigation involved the collection of surface and subsurface soil samples, sediment samples and groundwater samples from the Site. Several contaminants were detected in surface soil, subsurface soil and groundwater above Delaware's restricted use Uniform Risk-Based Standard (URS) values. A detailed discussion of the sampling results is included in the RI report. The following is a summary of the investigation results.

INVESTIGATION RESULTS

SURFACE SOIL

In surface soils (0 to 2 feet below ground surface (bgs), polychlorinated biphenyls (PCBs) including Aroclor 1260, and poly-aromatic hydrocarbons (PAHs) including benzo (a) pyrene, dibenzo (a,h) anthracene and the metal arsenic were detected at concentrations above DNREC's Uniform Risk-Based Remediation Standards (URS) for restricted use (commercial) in a critical water resource area. Aroclor 1260 and arsenic were mainly detected in the northern end of the Site.

Contaminants that exceeded the URS in the surface soil at the Site are shown in the Table 1.

Table 1: Surface Soil Results (0-2 feet bgs)

<u>Contaminant</u>	<u>Reasonable Maximum Exposure Concentration*</u> (mg/kg)	<u>URS for Restricted Use (mg/Kg)</u> <u>Screening Level</u>	<u>Default Natural Background Concentration</u> (mg/kg)**
Organics			
benzo(a)pyrene	3.1	0.8	N/A
dibenz(a,h)anthracene	3.2	0.8	N/A
Inorganics			
Aroclor 1260	12	3	N/A
Metals			
arsenic	15.2	4	11

* RME- Reasonable Maximum Exposure Concentration calculated as the 95% Upper Confidence Level (UCL) of the arithmetic mean of concentrations of contaminants detected at the site. RME values calculated using EPA Pro-UCL Software (USEPA, 2004).

** From URS Guidance (DNREC, 1999)

N/A – Not applicable

Mg/kg- milligrams per kilogram

SUBSURFACE SOIL

In subsurface soil (greater than 2 feet bgs), PAHs including benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd) pyrene were detected above their respective restricted use URSs at one location only (GP-12 at depth of 5 to 7 feet). GP-12 is located at the southern end of the Site adjacent to the Georgetown coal gas site. The PAH contamination may have resulted from adjacent coal gas activities. No other sample locations exceeded the restricted use URS for any chemicals.

Contaminants exceeded the URS in the subsurface soil at only one location at the Site and are shown in Table 2.

Table 2: Subsurface Soil Results (more than 2 feet bgs)

<u>Contaminant</u>	<u>Maximum Concentration (mg/kg)</u>	<u>URS for Restricted Use (mg/Kg)</u>
Organics		
PAHs		
Benzo(a)pyrene	13.5	0.8
benzo(b)fluoranthene	13.9	8
dibenz(a,h)anthracene	2.40	0.8
indeno(1,2,3-cd)pyrene	12.1	8

GROUNDWATER

Groundwater was observed from 8 to 11 feet bgs. Based on information from the adjacent HSCA sites, groundwater flow in the area is primarily to the northeast. However, groundwater flow at the southern end of the Site is affected by two onsite industrial wells (process well and pre-pack well). When the wells are pumping (May – November), groundwater flow at the southern end of the Site is in a southern direction (toward the pumping wells). When the pumping wells are not operating, groundwater flow is to the east-northeast.

A total of six monitoring wells were sampled during the Site investigations. Iron, manganese, antimony and thallium, were detected in the groundwater results above their applicable URS values. Iron and manganese URSs are based on the Federal Secondary Maximum Contaminant Levels (SMCLs). The SMCLs represent advisory values for odor and taste of drinking water and are not enforceable. Iron and manganese are not considered to be contaminants of concern. Antimony and thallium were only detected during the preliminary evaluation in 2002 but were not detected during the RI. Antimony and thallium are not considered contaminants of concern.

Contaminants that exceeded URS in groundwater at the site are shown in Table 3:

Table 3: Groundwater Results

<u>Contaminant</u>	<u>Maximum Concentration*</u> <u>(ug/L)</u>	<u>Groundwater URS</u> <u>(ug/L)</u>
Iron	1180	300
Manganese	182	50
Antimony	14	6
Thallium	94	2

* Maximum Concentration detected in groundwater.

DNREC sampled the Site’s Process well and determined that it has been impacted by benzene and tetrachloroethane (PCE) from offsite sources. The Delaware Department of Public Health restricted J.G. Townsend from using the well as a drinking water source. The groundwater for Georgetown Cleaners, Georgetown Coal Gas and JG Townsend are being addressed under a separate operable unit. It is anticipated that this will include treatment of the JG Townsend Process well to return it to use as a drinking water well.

SITE RISK EVALUATION

A risk assessment was performed to identify the potential effects to human health and the environment by the contaminants of concern at the Site.

Soil

The cumulative carcinogenic risk posed by the Site surface soil to human health is calculated to be 8.4×10^{-6} and 6.25×10^{-6} for subsurface soils. The risk evaluation indicated that the cumulative cancer risk is below DNREC cleanup level of 1×10^{-5} . Soil sample GP-12 (5 to 7 feet bgs) was considered an outlier and was not used to calculate the carcinogenic risk for the entire Site.

The non-carcinogenic risk or hazard index (HI) for the surface and subsurface soils are 0.29 and 0.004, respectively. The results are below the DNREC cleanup level of hazard index of 1.0.

Groundwater

Groundwater, as described above, will be addressed as a separate operable unit.

Vapor

The vapor intrusion risk was assessed based on the groundwater data from the adjacent Georgetown Coal Gas Site. The cumulative carcinogenic risk to humans posed by VOCs from groundwater to the indoor air would be 9.98×10^{-7} . This is below DNREC acceptable risk level of 1×10^{-5} . Vapor intrusion does not present an unacceptable risk to human health.

REMEDIAL ACTION OBJECTIVES

According to Section 8.4 (1) of the HSCA Regulations, site-specific remedial action objectives (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. The following qualitative RAOs are appropriate for the Site:

Qualitative Objectives

- Restrict the future use of the Site to restricted use (commercial).
- Control potential human exposure (dermal, inhalation, and ingestion) to subsurface soil at the southern end of the Site.

Quantitative Objectives

- Prevent human exposure to surface soils at the Site contaminated with PAHs, specifically benzo (a) pyrene and dibenz (a,h) anthracene, arsenic, and PCBs, specifically Araclor 1260, by restricting the Site use to commercial/industrial purpose.
- Prevent human exposure to subsurface soil at the southern end of the Site, specifically around GP-12, Figure 2 contaminated with PAHs, specifically benzo (a) pyrene, benzo (b) fluoranthene, dibenz (a,h) anthracene and indeno (1,2,3-cd) pyrene that would result in a cumulative carcinogenic risk greater than 1×10^{-5} and non-carcinogenic risk (HI) of 1.0.

EVALUATION OF REMEDIAL ALTERNATIVES

A presumptive remedy is the preferred and established remedial alternative for common categories of releases or facilities. The presumptive remedy considered for the Site are environmental covenants restricting the Site to commercial use and digging restrictions around the subsurface soil at sampling location GP-12. According to Subsection 8.5 (3) of the HSCA Regulations, "The Department may consider and approve any presumptive remedy that is determined to satisfy the requirements contained in Subsection 8.6". Environmental covenants were determined to be protective of human health, welfare and the environment and meet the remaining requirements of Subsection 8.6.

DNREC has accepted environmental covenants as the preferred remedial action for the Site since the remedy meets the criteria presented above.

FINAL PLAN OF REMEDIAL ACTION

Based on DNREC's evaluation of the Site information, which includes current and past environmental investigations, historical information, the above remedial action objectives, and the evaluation of the presumptive remedy, DNREC requires the following remedial actions be taken at the Site:

1. An environmental covenant, consistent with Delaware's Uniform Environmental Covenants Act, UECA ([Title 7, Del. Code Chapter 79, Subtitle II](#)), will be required at the Site, within 90-days following DNREC's adoption of the Final Plan of Remedial Action. The environmental covenant will describe the following:
 - a) The Site will be restricted to commercial use. Any future development will be limited to commercial use.
 - b) Any land disturbing activities will be prohibited including, but not limited to digging, drilling, construction, earth moving or any other land disturbing activity in the soil contamination area around the sampling location of GP-12 (See Figure 2) will not be allowed without DNREC's prior written approval. DNREC's approval will require a DNREC-approved Site specific Contaminated Material Management Plan and Health and Safety Plan.

PUBLIC PARTICIPATION

The Department actively solicited written public comments and suggestions on the Proposed Plan of Remedial Action. The comment period began on December 11, 2006, and ended on January 2, 2007. No comments were received. If you have any questions or concerns regarding the J.G. Townsend Frozen Foods site, or if you would like to view reports or other information regarding this Site, please contact the project manager, Rick Galloway, at 391 Lukens Drive, New Castle, Delaware 19720 or at 302.395.2600.

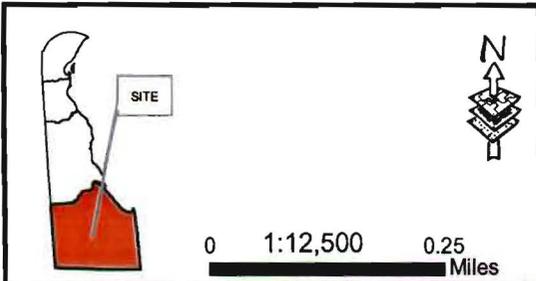
DECLARATION

The Final Plan of Remedial Action for the J.G. Townsend Frozen Foods site is protective of human health, welfare and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.


James Werner, Director,
Division of Air and Waste Management

1/11/07
Date

SITE FIGURES



DNREC
 SITE INVESTIGATION AND
 RESTORATION BRANCH
 391 LUKENS DRIVE,
 NEW CASTLE, DE 19720-2774
 302.395.2600

FIGURE 1
SITE LOCATION MAP
J.G. TOWNSEND
FROZEN FOODS SITE

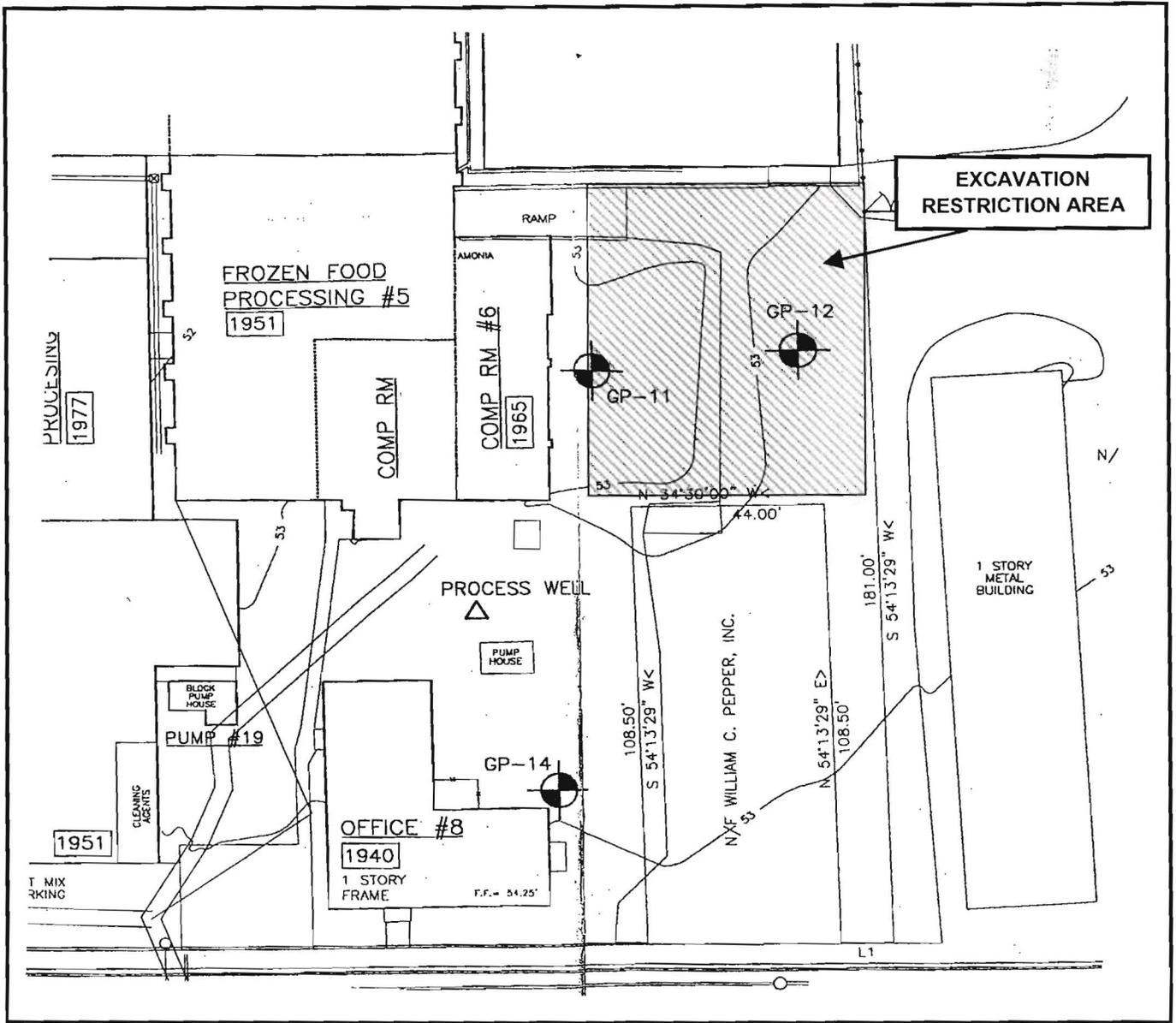


FIGURE 2: EXCAVATION RESTRICTION AREA
J.G. TOWNSEND JR. & CO. FROZEN FOODS SITE
 DNREC PROPOSED PLAN OF REMEDIAL ACTION
 TOWN OF GEORGETOWN, DELAWARE
