

# Letter Health Consultation

---

## **Soil Vapor Intrusion Data Evaluation**

LIBERTY INDUSTRIAL FINISHING CORP  
FARMINGDALE, NASSAU COUNTY, NEW YORK

EPA FACILITY ID: NYD000337295

**Prepared by**  
**State of New York Department of Health**

SEPTEMBER 22, 2009

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Agency for Toxic Substances and Disease Registry  
Division of Health Assessment and Consultation  
Atlanta, Georgia 30333

## **Health Consultation: A Note of Explanation**

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

You May Contact ATSDR TOLL FREE at  
1-800-CDC-INFO

or

Visit our Home Page at: <http://www.atsdr.cdc.gov>

LETTER HEALTH CONSULTATION

**Soil Vapor Intrusion Data Evaluation**

LIBERTY INDUSTRIAL FINISHING CORP  
FARMINGDALE, NASSAU COUNTY, NEW YORK

EPA FACILITY ID: NYD000337295

Prepared By:

State of New York  
Department of Health  
Under a cooperative agreement with the  
Agency for Toxic Substances and Disease Registry





STATE OF NEW YORK  
DEPARTMENT OF HEALTH

Flanigan Square 547 River Street Troy, New York 12180-2216

Richard F. Daines, M.D.  
Commissioner

James W. Clyne, Jr.  
Executive Deputy Commissioner

September 16, 2009

Mr. Lorenzo Thantu  
Eastern New York Remedial Section  
U.S. Environmental Protection Agency, Region II  
20th Floor, 290 Broadway  
New York, New York 10007

re: Liberty Industrial Finishing Corp.  
Letter Health Consultation  
CERCLIS NO. NYD000337295  
Soil Vapor Intrusion Data Evaluation  
Site # 130005  
Farmingdale, Nassau County

Dear Mr. Thantu:

In March of 2005, the New York State Department of Health (NYSDOH) and the Agency for Toxic Substances and Disease Registry (ATSDR) completed a Public Health Assessment (PHA) for the Liberty Industrial Finishing Corporation site (ATSDR 2005). At the time, the PHA was completed, there were insufficient data on concentrations of site-related contaminants in soil, soil vapor and groundwater to determine if vapor intrusion exposures were occurring.

Since the release of the March 2005 PHA, soil vapor intrusion (SVI) sampling was conducted by the U.S. Environmental Protection Agency (USEPA), as recommended by the NYSDOH and ATSDR, to determine the potential for site-related contaminants to impact indoor air quality. This letter health consultation (LHC) evaluates these data, the effectiveness of the remedial measures and interim remedial measures (IRMs) and discusses the public health implications of exposure to volatile organic compounds (VOCs) from soil vapor intrusion (SVI) from the site.

### ***Background and Statement of Issues***

The Liberty Industrial Finishing site (i.e. Liberty Site) is a former aircraft part manufacturing and metal plating facility about 1 mile south of Bethpage State Park in the Town of Oyster Bay, South Farmingdale, Nassau County, New York (Appendix A, Figure 1). The 30-acre site is bordered by Long Island Railroad tracks to the north,

Motor Avenue to the south, Main Street to the east, and a small park (the Ellsworth-Allen Park) to the west. During the 1940s, the Defense Plant Corporation (DPC) purchased a portion of the site and built additional plant facilities for the manufacture of aircraft parts. During that time, Liberty Aircraft Products Corporation discharged untreated chromic-rich anodizing waste solutions and other metals and chlorinated solvents to a common recharge basin which contaminated on and off-site groundwater, sediments, soils and soil vapor.

In 1957, the Liberty Aircraft Products Corporation ceased operating at the site. In 1958, the Liberty Industrial Finishing Corporation (Liberty Finishing I) began operating at the site. In 1959, the Nassau County Department of Health (NC DOH) reported that liquid wastes dripped through floor grates in the process areas and were carried to a sump, which discharged the untreated wastes to the on-site recharge basins. NC DOH records also indicate inadequacies and improper operation of Liberty Finishing I's waste water treatment system. By 1965, another company named Liberty Industrial Finishing Corporation (Liberty Finishing II) began operating at the site. It is not known when Liberty Finishing I stopped operating at the site. The Liberty Finishing II operations included painting and plating with continued discharges of treated and untreated waste water to on-site recharge basins. In addition to the use of the recharge basins, Liberty Finishing II constructed a separate-sludge drying bed to receive metal sludge from the chromium-treatment plant. Business ceased altogether at the site by the 1980's.

In May 1986, the Liberty Industrial Finishing site was placed on the US EPA's National Priorities List (NPL). In March 2005, NYS DOH prepared a public health assessment (PHA) for the site under a cooperative agreement with ATSDR (ATSDR, 2005).

As a result of past operations and waste management practices, soil, soil vapor, groundwater, surface water and sediments both on-site and off-site were adversely impacted. Previous investigations determined groundwater, soil and sediment impacts, but vapor intrusion was not included within the initial investigations. Groundwater in the immediate vicinity of the site is not being used as a drinking water supply. Existing information (i.e. private well surveys etc.) suggests that there are no direct current exposures to Liberty Industrial Finishing's site-related groundwater contaminants. However, inhalation of contaminated soil vapor, which could volatilize from contaminated groundwater (through a process known as soil vapor intrusion) was considered a potential exposure route for occupants of homes and the Woodward Parkway elementary school down-gradient from the site and above the off-site groundwater plume.

## **Discussion**

### ***A. Environmental Contamination and Exposure Pathways - Soil Vapor Intrusion***

According to remedial investigation data, trichloroethene (TCE), the primary volatile contaminant of concern associated with the site, was detected at 1400 micrograms per liter ( $\mu\text{g/L}$ ) in the shallow (12 - 75 feet below ground surface) on-site groundwater. TCE was also detected in the off-site shallow groundwater plume at levels as high as 1300

µg/L. While tetrachloroethene (PCE) was also used at the Liberty Industrial Finishing site, it is not considered a significant contaminant of concern for the site. An upgradient site, Farmingdale Plaza Cleaners, was identified as the source of the PCE plume and is listed with the New York State Department of Environmental Conservation. The Farmingdale Plaza Cleaners' PCE plume flowing onto the Liberty Industrial site is being addressed by the Farmingdale Plaza Cleaner's groundwater remedy.

The USEPA conducted right-of way soil vapor and subslab only sampling in 2006, which generated data suggesting a need for further SVI investigations within homes and the Woodward Parkway elementary school located within the path of the site-related TCE plume (Appendix A, Figure 2). The USEPA conducted sub-slab only sampling at several homes and the elementary school. TCE was detected in the sub-slab only data from the 2006 sampling at 3.3 µg/m<sup>3</sup> and at 6.0 µg/m<sup>3</sup> at two residences. While these levels were not extremely high, their detection suggested that the TCE plume may be impacting indoor air quality in down-gradient structures via vapor intrusion. As a result, several SVI sampling events were conducted by the USEPA to determine the potential for vapor intrusion into these buildings (USEPA 2008, 2009).

The NYSDOH was provided data collected by the USEPA in 2008 and 2009 to evaluate the potential for soil vapor intrusion into buildings selected for SVI sampling based on previous right-of-way soil vapor sampling results. For all structures, site-related contaminants were either not detected in the sub-slab soil vapor or were detected at low levels not expected to significantly affect indoor air quality. Indoor air of the selected homes and school building does not appear to be affected by intrusion from sub-slab soil vapor contaminants; for all structures, site-related contaminants were either not detected in the indoor air samples or were detected at low levels, within levels typically found in residential buildings (NYSDOH, 2003) and below NYSDOH air guideline values and action levels (NYSDOH, 1997, 2006a,b).

At one residence, 1,4 dichlorobenzene (1,4-DCB) and 1,1,1-trichloroethane (1,1,1-TCA), (non site-related VOCs) were detected in the indoor air at levels of 4.8 µg/m<sup>3</sup> and 27.0 µg/m<sup>3</sup> respectively. Sub-slab vapors for the home contained 2.3 µg/m<sup>3</sup> of 1,1,1-TCA and 1.7 µg/m<sup>3</sup> of 1,4-DCB. The elevated concentrations of 1,4-DCB and 1,1,1-TCA can be attributed to indoor sources rather than to soil vapor intrusion. 1,4-DCB is used as an ingredient in some space deodorants, toilet deodorizers and products used to control mold, mildew and moths and can evaporate from these products into indoor air. 1,1,1-TCA can be found in a variety of household adhesives, lubricants and degreasers. The USEPA suggested ways to reduce exposure to the chemicals.

### ***B. Public Health Implications***

Sampling results indicate that sub-slab vapor and indoor air of buildings down-gradient of the Liberty site are not being significantly impacted by site-related contaminants in the groundwater plume. Therefore, the Liberty site is not expected to impact the health of nearby residents via soil vapor intrusion.

## ***Conclusions***

NYS DOH and ATSDR conclude that breathing contaminated air as a result of soil vapor intrusion into homes or the elementary school down-gradient from the Liberty Industrial Finishing Corporation is not expected to harm people's health (Appendix B). This is because site-related VOCs were either not detected in the sub-slab vapor samples or were detected at levels not expected to affect indoor air quality. In addition, site-related VOCs were either not detected in the indoor air or were present within levels typically found in residential buildings. Remedial actions on and off the site have removed, reduced or continue to reduce VOC contaminant sources, thus further reducing any potential for SVI to impact the indoor air in homes and the school down-gradient of the site.

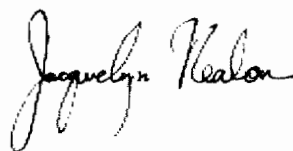
## ***Recommendations***

Based on a review of the analytical data and available information, the NYSDOH has made the following recommendations for the homes and elementary school sampled in relation to soil vapor intrusion from the groundwater plume associated with the Liberty Industrial site:

- **No further Action** is recommended for the down-gradient structures since site-related VOCs do not appear to be affecting or likely to affect in the future the residential buildings or the school.

Thank you for the opportunity to review and evaluate this data.

Sincerely,



Jacquelyn Nealon  
Public Health Specialist III  
Bureau of Environmental  
Exposure Investigation

ec. G. Litwin/D. Miles/file  
L. Graziano/R. Stephenson  
G. Ulrich  
D. Irwin/J. DeFranco  
T. Johnson  
W. Parish  
C. Vasudevan



**APPENDIX A**  
Figure 1 & Figure 2



Figure 1 - Site Specific Map



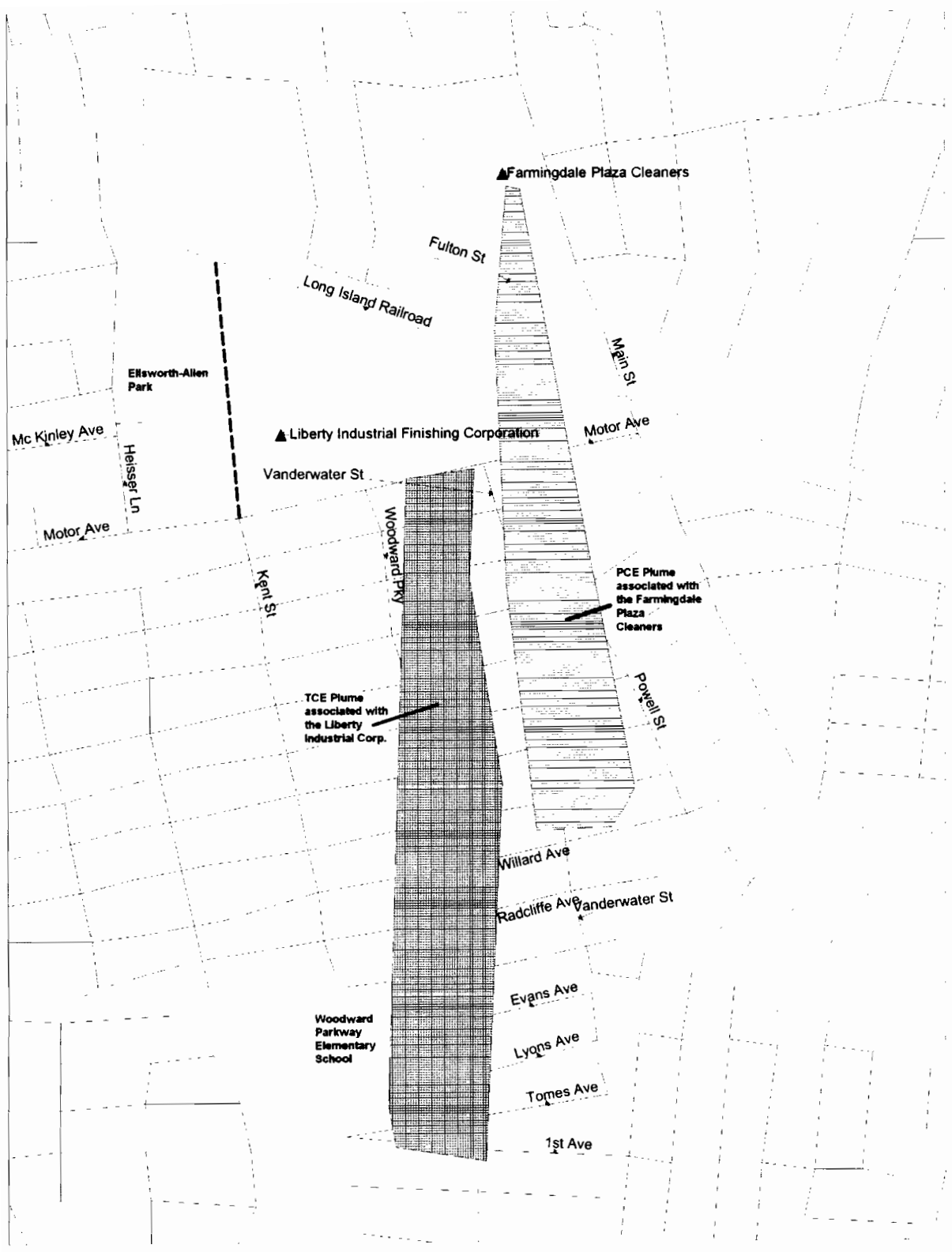




Figure 2



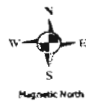




500 0 500 1,000 Feet

**Legend**

● Sampling Location

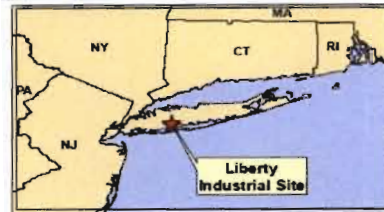


Map created using survey GPS data  
GPS collected in Lat., Lon., Decimal Degree, WGS84

Map Creation Date: June 2009

Coordinate system: UTM  
Zone 18N  
Datum: NAD83  
Units: Meters

Data: g:\arcmap\project\mex4100303  
MXD File: g:\arcmap\project\mex4100303\_Liberty\_Ind\303\_Samples\_062009.mxd



U.S EPA Environmental Response Team  
Response Engineering and Analytical Contract  
EP-C-04-032  
W.A.# 0-303

**Figure 1**  
Sample Location Map  
Liberty Industrial Site  
Farmingdale, New York  
June 2009



**Appendix B**

**CONCLUSION CATEGORIES AND HAZARD STATEMENTS**

## ***Conclusion Categories and Hazard Statements***

ATSDR has five distinct descriptive conclusion categories that convey the overall public health conclusion about a site or release, or some specific pathway by which the public may encounter site-related contamination. These defined categories help ensure a consistent approach in drawing conclusions across sites and assist the public health agencies in determining the type of follow-up actions that might be warranted.

### **1. Short-term Exposure, Acute Hazard “*ATSDR concludes that...could harm people’s health.*”**

This category is used for sites where short-term exposures (e.g. < 1 yr) to hazardous substances or conditions could result in adverse health effects that require rapid public health intervention.

### **2. Long-term Exposure, Chronic Hazard “*ATSDR concludes that...could harm people’s health*”**

This category is used for sites that pose a public health hazard due to the existence of long-term exposures (e.g. > 1 yr) to hazardous substance or conditions that could result in adverse health effects.

### **3. Lack of Data or Information “*ATSDR cannot currently conclude whether...could harm people’s health.*”**

This category is used for sites in which data are insufficient with regard to extent of exposure and/or toxicologic properties at estimated exposure levels to support a public health decision.

### **4. Exposure, No Harm Expected “*ATSDR concludes that ... is not expected to harm people’s health*”**

This category is used for sites where human exposure to contaminated media may be occurring, may have occurred in the past, and/or may occur in the future, but the exposure is not expected to cause any adverse health effects.

### **5: No Exposure, No Harm Expected “*ATSDR concludes that ...will not harm people’s health.*”**

This category is used for sites that, because of the absence of exposure, are not expected to cause any adverse health effects.

### **References:**

ATSDR (Agency for Toxic Substances and Disease Registry) 2005, NYSDOH PHA Liberty Industrial Finishing Corporation: NYSDOH March, 2005.

NYSDOH (New York State Department of Health). 1997. Tetrachloroethene Ambient Air Criteria Document. Final Report. Albany, NY: Center for Environmental Health, Bureau of Toxic Substance Assessment.

NYSDOH (New York State Department of Health). 2003. Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes in New York State. Available online at: [http://www.health.state.ny.us/nysdoh/indoor/fuel\\_oil.htm](http://www.health.state.ny.us/nysdoh/indoor/fuel_oil.htm).

NYSDOH PHA Liberty Industrial Finishing Corporation: NYSDOH March 2005

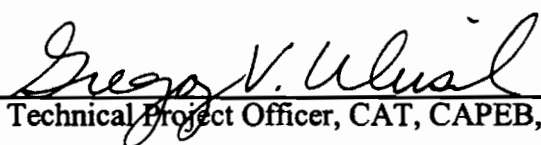
NYSDOH Air Guideline Value; NYSDOH. 2006a. Final Report: Trichloroethene (TCE) Air Criteria Document. Center for Environmental Health, Bureau of Toxic Substance Assessment. Troy, NY.

NYSDOH 2006b Guidance for Evaluating Soil Vapor Intrusion in the State of New York; 2006

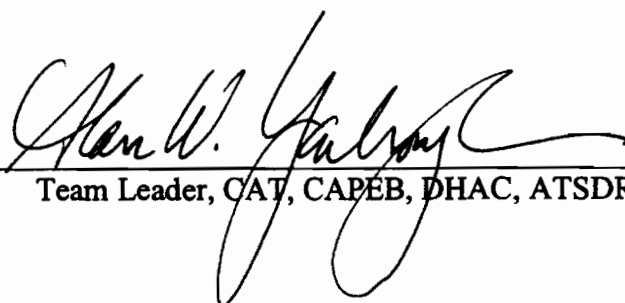
USEPA 2008, 2009 Environmental Response Team (West) Data Report: 04/08, 02/09, 06/09

## CERTIFICATION

The letter health consultation for the Liberty Industrial Finishing site was prepared by the New York State Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the letter health consultation was initiated. Editorial review was completed by the cooperative agreement partner.

  
Technical Project Officer, CAT, CAPEB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this health consultation, and concurs with its findings.

  
Team Leader, CAT, CAPEB, DHAC, ATSDR