

**FIFTH FIVE-YEAR REVIEW REPORT FOR
PORT WASHINGTON L-4 LANDFILL SUPERFUND SITE
NASSAU COUNTY, NEW YORK**



Prepared by

**U.S. Environmental Protection Agency
Region 2
New York, New York**

A handwritten signature in black ink, appearing to read "P. Evangelista", is written over a horizontal dashed line.

**Pat Evangelista, Acting Director
Superfund and Emergency Management Division**

A handwritten date "8/28/19" is written in black ink over a horizontal dashed line.

Date:

568962



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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
ICs	Institutional Controls
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
ROD	Record of Decision
RPM	Remedial Project Manager
TBC	To be considered

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fifth FYR for the Port Washington L-4 Landfill Superfund Site. The triggering action for this statutory review is the September 30, 2014 completion date of the previous FYR. The FYR has been prepared due to the fact that hazardous substances, pollutants or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The site is divided into three operable units (OUs). OU1 addresses landfill gas and the remedy includes a perimeter gas collection system. OU2 addresses the L-4 landfill and the remedy includes upgrades to an existing cap and installation of a cap over additional wastes. OU3 addresses contaminated leachate/groundwater from L-4 and the remedy includes the extraction and treatment of groundwater. This FYR addresses all three OUs.

The Port Washington L-4 Landfill Superfund Site FYR was led by Kevin Willis, Remedial Project Manager. Participants included Julie McPherson, Human-health Risk Assessor, Chuck Nace, Ecological Risk Assessor, Rachel Griffiths, Geologist, and Melissa Sweet, New York State Department of Environmental Conservation (NYSDEC) Project Manager. The Town of North Hempstead was notified of the initiation of the FYR. The review began on February 4, 2019.

Site Background

Physical Characteristics

The Port Washington Landfill is located in the northwestern portion of Nassau County, in Long Island, New York. The landfill is located on a 139-acre lot, owned and operated by the Town of North Hempstead (the Town). This property contains two landfilled parcels separated by a vacant area (see Figure 1). The L-4 parcel is a 53-acre inactive closed landfill on the western portion of the property. It is the designated Superfund site. The L-5 parcel, a closed landfill on the eastern portion of the property, is not considered to be part of the NPL site, and is being addressed under Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 360 municipal landfill closure requirements by the State of New York.

Site Geology/Hydrology

The site is located on the Manhasset Neck of Long Island. This area is mainly composed of Pleistocene sand deposits interbedded with thrust clay layers. Groundwater generally migrates toward the adjacent Hempstead Harbor to the east.

The site is bordered by Hempstead Harbor to the east, an industrial park to the south, residential property and the North Hempstead Country Club to the west and the Town-owned Harbor Links Golf Club (the former Morewood Property). There are two potable water wells remaining in use in the area. The

Stonytown Well (Lloyd Aquifer) is located 3,000 feet southwest and hydraulically upgradient of L-4 and the Hewlett Well (Magothy Aquifer) is located 3,000 feet south and hydraulically upgradient of L-4.

The Southport Well (Magothy Aquifer), located 1,300 feet west and hydraulically upgradient from L-4, and the two Bar Beach Wells (Upper Glacial Aquifer), located 4,000 feet north and possibly hydraulically downgradient of L-4, have been taken out of service.

Landfilling at L-4 began in March 1974 with the disposal of incinerator residue, residential and commercial refuse, and construction debris by the Town of North Hempstead. During the winters of 1979, 1980 and 1981 furnace explosions occurred in homes directly west of the landfill. In 1981, air monitoring was performed in the area by the Nassau County Fire Commission, which revealed excessive levels of methane in several area residences. As a result, the Town initiated remedial measures to prevent the uncontrolled migration of subsurface gases to the west of the landfill. A system of both active and passive gas vents were utilized to collect vented gases and to flare them in a horizontal combustion unit to destroy the hazardous chemicals commonly detected in sanitary landfill gas.

In 1981, the Nassau County Department of Health also tested for and discovered volatile organic contaminants (VOCs), primarily chlorinated hydrocarbons, in the Southport Well. As a result, the well was removed from service as a potable water supply. The Town stopped accepting waste at L-4 in 1983. The site was given final status on EPA's National Priorities List (NPL) in September 1983.

FIVE-YEAR REVIEW SUMMARY FORM

Note: The "Review period" referenced below is meant to correspond to the start and end dates associated with the preparation of this FYR report.

SITE IDENTIFICATION		
Site Name: Port Washington L-4 Landfill		
EPA ID: NYD980654206		
Region: 2	State: NY	City/County: Port Washington/Nassau County
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA <i>[If "Other Federal Agency", enter Agency name]:</i>		
Author name (Federal or State Project Manager): Kevin Willis		
Author affiliation: EPA RPM		
Review period: 9/14/2014 – 9/14/2019		
Date of site inspection: 6/11/2019		

Type of review: Statutory
Review number: 5
Triggering action date: 9/30/2014
Due date (<i>five years after triggering action date</i>): 9/30/2019

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The media of concern at the site include groundwater and soil gas. There is a groundwater plume containing VOCs, heavy metals and leachate indicator parameters (e.g., ammonia and total organic carbon). Gases from the landfill were migrating into the adjacent residential community.

A human health risk assessment was conducted during the RI/FS. It was found that site contaminants, predominately arsenic, vinyl chloride, 1,1-dichloroethane (DCA), 1,1-dichloroethylene (1,1-DCE), trichloroethylene (TCE) and tetrachloroethylene (PCE) posed an unacceptable risk from exposure to and use of contaminated groundwater in the vicinity of the site. The risk assessment also concluded that contaminant vapors posed a potential risk to residences adjacent to the landfill.

The previous FYRs indicated that there were no adverse ecological impacts due to site-related contaminants since there were no completed ecological pathways. Monitoring well data from TNH-18S, the closest shallow well to Port Washington Harbor, was evaluated and no site-related contaminants were identified; therefore the plume is not migrating to the harbor. Given that the contaminants in the groundwater do not discharge to any surface water body, and the residual contamination in the landfill is capped, there are no impacts to ecological receptors.

Response Actions

As noted above, during the winters of 1979, 1980 and 1981 furnace explosions occurred in homes directly west of the landfill. In 1981, air monitoring was performed in the area by the Nassau County Fire Commission, which revealed excessive levels of methane in several area residences. As a result, the Town initiated remedial measures to prevent the uncontrolled migration of subsurface gases to the west of the landfill. A system of both active and passive gas vents were utilized to collect vented gases and to flare them in a horizontal combustion unit to destroy the hazardous chemicals commonly detected in sanitary landfill gas.

In 1981, the Nassau County Department of Health also tested for and discovered volatile organic contaminants (VOCs), primarily chlorinated hydrocarbons, in the Southport Well. As a result, the well was removed from service as a potable water supply.

Remedy Selection

Based upon the findings of the RI/FS, EPA signed a September 1989 Record of Decision (ROD) for the site selecting the following remedy for the three OUs:

- Closure of L-4 in accordance with the 6 NYCRR Part 360 requirements for New York State sanitary landfills;
- Rehabilitation of the existing active gas venting system;
- Extension of the existing active gas venting system around the entire perimeter of L-4;
- Addition of a second gas combustion unit as standby;
- Placement of extraction wells in the Upper Glacial Aquifer in areas with elevated levels of groundwater contamination;
- Treatment of extracted groundwater from the Upper Glacial Aquifer through metals removal and air stripping prior to discharge to an aquifer recharge basin;
- Treatment of groundwater at the Southport Well through air stripping should the Port Washington Water District decide to use the Southport Well as a potable water source;
- Installation of groundwater monitoring wells to define further the extent of the L-4 leachate and VOC plumes, as well as to refine the placement of the proposed extraction wells;
- Installation of additional groundwater and landfill gas monitoring wells around L-4 to be used in conjunction with the existing landfill gas and groundwater monitoring network in order to monitor L-4 comprehensively;
- Development and conduct of a comprehensive monitoring plan for L-4, including performance monitoring of the gas venting system;
- Development and conduct of an operation and maintenance plan for remedial actions selected in the ROD, as well as those previously employed for L-4.

Based on the risk assessment, the following Remedial Action Objectives (RAOs) were developed for the site:

- Protect human health and the environment by controlling sources of contamination at the site.
- Eliminate the potential exposure pathways.
- Restore lost resources. This includes the restoration of the aquifer and the loss of the local water district's capacity to provide public water.

Remedy Implementation

In October 1990, EPA entered into a Consent Decree with the Town for implementation of the September 1989 ROD. In September 1990, the Town tasked their existing contractor, LKB Associates, Inc. (LKB), to implement the provisions in the ROD, whereby LKB produced the initial action plans for site remediation. This included the plans for monitoring the affected groundwater and soil gases on- and off-site. Following a change in the Town's administration, the Town's contracted support was reevaluated. In October 1992, the Town entered into an agreement with Blasland, Bouck & Lee, Inc. (BBL) who began performing the remedial design (RD) of the above-described remedial activities and further groundwater investigations of the contamination related to L-4.

Gas Migration Mitigation

Design work for the rehabilitation of the existing active gas venting system was finalized in June 1993 and the remedial action (RA) work began immediately thereafter. This phase of the site remedy was undertaken first in order to ensure protection of the adjacent residences. A contingency plan was developed by the Town, in cooperation with EPA, NYSDEC, and the local resident's Citizen Advisory Council (CAC), to establish the operational parameters of the facilities to assure the protectiveness of the

system. Under this contingency plan, a negative air pressure is to be maintained in the gas monitoring wells immediately outside of the L-4 boundary, and if a power failure were to occur, the modified landfill gas extraction system would be the first system to receive power.

The construction of the extension of the active landfill gas extraction system was completed in December 1999. This system circumscribes the northern and eastern edges of L-4 where soil gas monitoring had detected some minor migration of landfill gases.

In November 2018, the Town submitted to EPA and NYSDEC a plan to modify the existing gas collection systems at the site. The new design is to improve the system's efficiency and operational integrity while maintaining protectiveness to the nearby community. Following a meeting held at the SWMA offices in December 2018, EPA and NYSDEC approved the modifications. Construction of the improvements began in February 2019 and are expected to be completed in the summer of 2019.

Capping and Closure of L-4 Cell

The RD for the closure of L-4 in accordance with the 6 NYCRR Part 360 requirements for New York State sanitary landfills was completed on March 31, 1995. The RA work commenced with the Town's emplacing the subgrade for L-4. On December 14, 1995, BBL subcontracted the remaining cap construction activities to Breco Mechanical Group, Inc., Breco mobilized to the site on January 22, 1996. Construction was completed for the L-4 cap and the final walkthrough inspection was held September 30, 1997.

L-4 Groundwater Extraction and Treatment

The expanded groundwater investigation required by the ROD began in September 1990 with a monitoring plan designed by LKB. Once BBL was contracted, the first of the additional monitoring wells was installed west of L-4. The first Supplemental Groundwater Investigation Report was finalized in March 1994. In 1996, it was decided that sufficient data had been gathered to design a groundwater extraction and treatment system to extract the contamination at its source, but that additional investigation would be necessary to determine the fate and transport of the plume of contamination migrating northward from L-4 that would not be captured by the groundwater extraction and treatment system. The results of the groundwater investigation were presented to EPA in the Phase II Groundwater Investigation Report in January 1997. The construction of the pump and treat system was completed by January 1999.

Negotiations between the Port Washington Water District and the Town resulted in replacing the Southport Well with the construction of another public supply well outside of the local vicinity. This well was constructed approximately two miles from the site due to State water use restrictions for this part of Long Island. Construction of this well was completed in July 2000.

IC Summary Table

The remedy for the site did not include specific institutional controls (ICs), but New York State mandates that no drinking water wells will be installed in the area and other local ordinances and mechanisms are in place to prevent exposure. In addition, L-4 is owned by the municipality, and EPA believes that the municipality will act appropriately to enforce the ICs which prevent wells from being installed and therefore prevent exposure.

Table 1: Summary of Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater	No	No	Entire Site	Assure No Use of Contaminated Groundwater for Potable Use	New York State Sanitary Code 10 NYCRR Part 5, Subpart 5-2

Systems Operations/Operation & Maintenance

An Operation and Maintenance (O&M) Manual was approved for the site operations in March 2000. The O&M manual outlined the regular maintenance procedures the Town is to follow during the operation of the remedial systems at the site. O&M activities include the maintenance of the groundwater extraction and treatment system, maintenance of the soil gas extraction system, maintenance of the landfill cap and cover, and monitoring site conditions by means of semi-annual sampling of the monitoring well network.

The OU1 perimeter landfill gas collection and flare systems have been undergoing a replacement and modification effort by the Town. Because the L-4 Landfill has been producing less methane, modifications to the flaring of the extracted gases is warranted. In addition, the gas extraction wells have required modification due to their age. EPA and NYSDEC have approved the plans to refurbish these systems which are currently being finished.

The OU2 L-4 Landfill cap remains fully intact and functional. Adjustments are to be made to emplace the landfill gas collection system headers below grade, but above the impervious landfill cap membrane, assuring easier maintenance of the cap cover while protecting the gas system header pipes from degrading conditions.

The OU3 Groundwater Extraction and Treatment system has undergone regular maintenance since its construction and has recently been overhauled to assure its continual containment of the contaminant plume migrating from the L-4 Landfill. The Town has replaced much of the electronics and many of the pumps, and has modified the maintenance plan, to assure a continual performance of the system. These actions brought the OU3 Remedial Action into proper operation and the subsequent data has shown that the contamination in the off-property monitoring wells has reduced to acceptable levels. With the ongoing maintenance of the system components, the existing remedy remains fully protective of human health and the environment. The Town samples for VOCs twice annually and reports the results to EPA and NYSDEC.

Potential site impacts from climate change have been assessed, and the performance of the remedy is currently not at risk due to the expected effects of climate change in the region and near the site.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the **last** FYR as well as the recommendations from the **last** FYR and the current status of those recommendations.

Table 2: Protectiveness Determinations/Statements from the 2014 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	The OU1 remedy (perimeter gas extraction system) which mitigates the migration of landfill gases into the adjacent community has continually operated well and is fully protective of human health and the environment.
2	Protective	The OU2 remedy (landfill cap) continues to be in well-maintained condition and is fully protective of human health and the environment.
3	Short-term Protective	OU3 is protective of human health and the environment in the short term, however, to be protective in the long term, the groundwater extraction system must be modified to contain the groundwater contaminant plume emanating from the L-4 landfill completely.

Table 3: Status of Recommendations from the 2014 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
3	The groundwater extraction and treatment system will need to be modified to contain the contaminant plume from migrating past the groundwater extraction and treatment system completely	Modify groundwater extraction system to contain contaminant plume	Completed	System has been rebuilt and is operating continually. Data indicates that the System is containing the contaminant plume.	7/24/2019

Additionally, the previous FYR suggested that Wells TNH 26, TNH 27 and EPA-102 need to be included in the monitoring network and all wells in the monitoring network need to be sampled semi-annually. These wells have been included into the sampling plan and have been sampled semi-annually since 2016.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On October 1, 2018, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at 42 Superfund sites in New York and New Jersey, including the Port Washington L-4 Landfill site. The announcement can be found at the following web address: <https://www.epa.gov/aboutepa/fiscal-year-2019-five-year-reviews>. In addition to this notification, a public notice was made available on the Town of North Hempstead's web site on 3/27/2019, stating that there was a FYR and inviting the public to submit any comments to the U.S. EPA. The results of the review and the report will be made available on the website for the site (<https://www.epa.gov/superfund/port-washington-landfill>), as well as the Site information repository located at Town Of North Hempstead Town Hall, 220 Plandome Road, Manhasset New York 11030.

Data Review

Groundwater data at the site is collected by the Town. The Town presented a combined sampling program that samples the entire landfill facility (L-4 and the former Morewood property for EPA, and L-5 for NYSDEC). Groundwater sampling occurs on an annual basis, except for the Morewood wells which were sampled quarterly in 2017. This FYR evaluates volatile organic compound (VOC) and monitored natural attenuation (MNA) parameter data collected from monitoring wells at the L-4 landfill (wells TNH-5 and TNH-6) and the former Morewood property downgradient (wells TNH-18S, TNH-21S, TW-2R, TNH-28S, and TNH-28D) as shown on Figure 1.

L-4 Groundwater Extraction and Treatment System

Since its 2009 refurbishment, the L-4 groundwater extraction and treatment system has been operating continuously with the exception of downtime in the first half of 2016. The influent into the groundwater treatment system has shown very low VOC concentrations (below MCL levels for PCE and TCE) and the VOC concentrations have been nondetectable after treatment. The treatment plant relies only on aeration to meet effluent discharge requirements and has been compliant throughout the review period.

Groundwater Monitoring Data

Monitoring wells in the L-4 network (TNH-5 and TNH-6) did not have exceedances of VOCs above NYSDEC Class GA groundwater standards, consistent with historic results. Downgradient of L-4 on the former Morewood property, only monitoring wells TNH-21S and TW-2R exhibited VOC concentrations above Class GA Standards during the review period. In TNH-21S, concentrations of DCA and 1,1,2-DCE showed fluctuating to decreasing trends through the review period, and both were below their Class GA standard of 5 ug/L by the December 2017 sampling event. Monitoring well TW-2R has historically exhibited high VOC concentrations as shown on the trend graph in Figure 2. During the beginning of the review period, chlorobenzene, 1,1-DCA, total 1,2-DCE, PCE, TCE, and vinyl chloride were all detected above their Class GA Standards (5 ug/L for all except vinyl chloride (2 ug/L)) in TW-2R. However, concentrations of 1,1-DCA, 1,1,2-DCE, PCE, and TCE decreased below their Class GA Standard at the end of the review period. Chlorobenzene and vinyl chloride remain marginally above their Class GA Standards (5 ug/L and 2 ug/L, respectively), but chlorobenzene was fluctuating around 6 ug/L and vinyl chloride decreased from 12 ug/L in 2013 to approximately 3 ug/L in 2017.

Natural attenuation and landfill indicator parameters were also evaluated at site monitoring wells. Ammonia, a landfill indicator parameter, was only consistently detected above its Class GA Standard of

2 mg/L at monitoring well TW-2R (maximum concentration of 35 mg/L) and TNH-28S (maximum concentration of 5.30 mg/L). The ammonia concentrations have been stable throughout the review period. Ammonia does not degrade as readily as the VOC contamination, so concentrations are expected to decrease more slowly.

Summary

In general, the groundwater data collected during the review period indicates that the L-4 groundwater extraction and treatment system is operating as intended. The previous FYR indicated that the system had not obtained complete capture, but the improvements to the system in 2009 have resulted in decreasing VOC concentrations outside of the landfill to levels that are generally below NYSDEC Class GA Standards. The improvements to the extraction system are particularly noticeable at monitoring wells TW-2R and TNH-21S, which had historically high concentrations that have decreased to below or marginally above Class GA Standards.

Site Inspection

The inspection of the Site was conducted on June 11, 2019. In attendance were Melissa Sweet of NYSDEC, Kevin Willis of EPA, and Robert Lange, Pat Saccoccia, and Paul Carpenter of the Town of North Hempstead. The purpose of the inspection was to assess the protectiveness of the remedy. Construction of the modified Landfill Gas Mitigation system was underway and operating properly during modifications. The groundwater extraction system was not operating during the visit due to a power surge the week before. The pumps were being replaced during the visit and were brought back to full operation later that week. EPA visited the site again on June 20, 2019 and all systems except for one extraction well were operating properly. That well's pump was replaced and was operating properly on July 2, 2019. The cap is being well maintained and is in proper condition.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Question A Summary:

The remedy selected for the site included (1) closing of the landfill in accordance with 6 NYCRR Part 360, (2) rehabilitation of the existing gas collection system and installation of additional active vents around the perimeter of the landfill, (3) replacing lost drinking water capacity due to the closure of the Southport well and (4) installation of additional extraction wells.

The remedial action objectives as identified in the 1989 ROD, are (1) control the sources of contamination at the site, (2) eliminate the potential exposure pathways and (3) restore lost resources.

The remedy selected to address the soil is currently in place. L-4 has been closed and capped in accordance with 6 NYCRR Part 360 and is currently being maintained by the Town. The cap is inspected annually by EPA to ensure that the landfill cover has not been compromised. As a result of the remedy and follow up maintenance of the landfill cap, the exposure pathway to potential receptors via exposure to landfill soil has been interrupted. The source control remedy as identified in the ROD is currently functioning as intended.

The remedy selected to address the groundwater has been implemented. The groundwater plume emanating from the L-4 landfill has been continually and regularly monitored. Since the 2016 refurbishment of the extraction and treatment system, VOC concentrations downgradient of the landfill have decreased significantly, indicating that contaminated groundwater is being captured as intended and is not migrating offsite.

The existing government controls prevent the installation of wells on the property. In addition, residents are connected to a municipal water supply. Groundwater use is not expected to change in this area within the next five years, the period of time until the next review.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Question B Summary:

Human Health –

The exposure assumptions and toxicity values that were used to estimate the potential cancer risks and noncancer hazards in the risk assessment supporting the 1989 ROD followed EPA guidance at the time, and the process used are still valid. While some chemical toxicity values have changed and some new toxicity values were developed for other contaminants since the site was originally assessed in 1989, the overall remedial approach for the site would not change. The groundwater remedy selected Federal or State National Primary Drinking Water Standards MCLs as cleanup levels, which are still considered protective.

As noted in the 2004 FYR, the land use downgradient from the landfill has changed since the ROD was signed. An elder-care facility was constructed relatively close to the residential development directly downgradient from the site. As a result of the 2004 FYR recommendations, soil vapor intrusion was evaluated as a potential exposure pathway. Several homes within the development were evaluated. The evaluation determined that vapor intrusion is not of concern in this area. Groundwater VOC concentrations in wells under this area are consistent with the levels found in the same wells when the Soil Vapor Analysis Study was done in 2008. EPA believes that the Harbor View Residential Community remains unaffected by migration of VOCs emanating from the plume of contamination that is migrating from L-4. In addition, MW-28 S and D, two wells closest to the development, have not shown VOC contamination since their installation.

The following are the remedial action objectives identified for this site: (1) protect human health and the environment by controlling the sources of contamination, (2) eliminating the potential exposure pathways and (3) restoring lost resources. The remedial action objectives as described in the ROD are still valid.

Ecological – The previous FYRs indicated that there were no adverse ecological impacts due to site-related contaminants since there were no completed ecological pathways. Monitoring well data from TNH-18S, the closest shallow well to Port Washington Harbor, was evaluated and no site-related contaminants were identified; therefore, the plume is not migrating to the harbor. Given that the contaminants in the groundwater do not discharge to any surface water body and the residual contamination in the landfill is capped, there are no impacts to ecological receptors.

QUESTION C: Has any other information come to light that could call into question the protectiveness

of the remedy?

No.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
<i>OU1, OU2, and OU3</i>

No issues or recommendations resulted from this FYR.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)		
<i>Operable Unit:</i> OU1	<i>Protectiveness Determination:</i> Protective	<i>Planned Addendum Completion Date:</i> Click here to enter a date
<i>Protectiveness Statement:</i> The implemented actions at OU1 protect human health and the environment.		

Protectiveness Statement(s)		
<i>Operable Unit:</i> OU2	<i>Protectiveness Determination:</i> Protective	<i>Planned Addendum Completion Date:</i> Click here to enter a date
<i>Protectiveness Statement:</i> The implemented actions at OU2 protect of human health and the environment.		

Protectiveness Statement(s)		
<i>Operable Unit:</i> OU3	<i>Protectiveness Determination:</i> Protective	<i>Planned Addendum Completion Date:</i> Click here to enter a date
<i>Protectiveness Statement:</i> The implemented actions at OU3 remedy protect of human health and the environment.		

Sitewide Protectiveness Statement

Protectiveness Determination:
Protective

*Planned Addendum
Completion Date:*
[Click here to enter a date](#)

Protectiveness Statement:

The remedial actions at the Port Washington L-4 Landfill site are protective of human health and the environment.

VIII. NEXT REVIEW

The next FYR report for the Port Washington L-4 Landfill Superfund Site is required five years from the completion date of this review.

Table 1: Documents Reviewed		
Author	Date	Title/Description
USEPA	June 1989	Remedial Investigation Report
USEPA	September 1989	Record of Decision
USEPA	March 2000	O&M Manual for Remedial Activities at Port Washington L-4 Landfill
Town of North Hempstead	August 2001	Port Washington Landfill Groundwater Treatment System Off-Gas Evaluation Report
Town of North Hempstead	August 2004 – Present	Progress Reports/Monitoring Data
USEPA	April 2014	Fourth Five-Year Review Report

Figure 1:

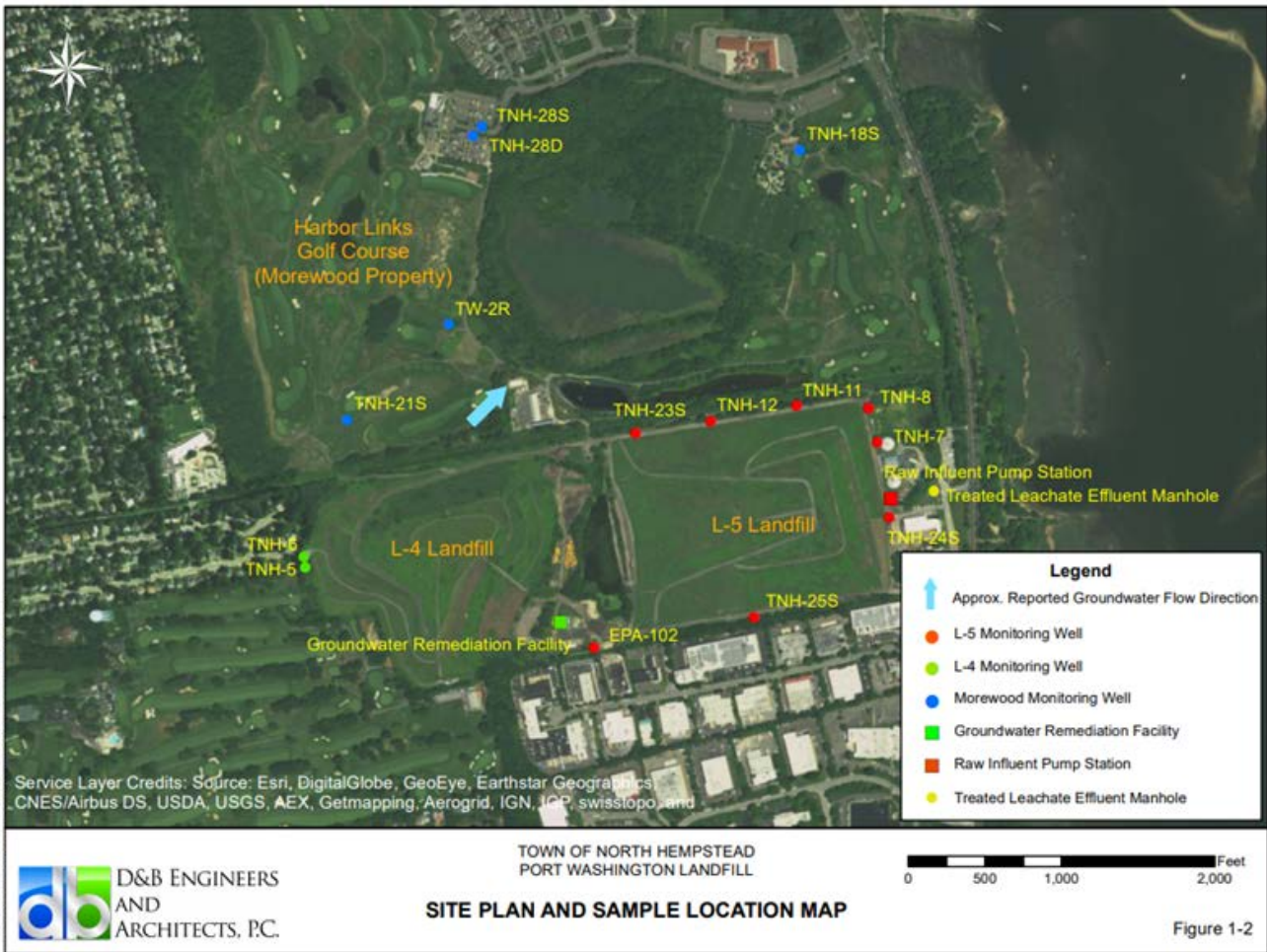
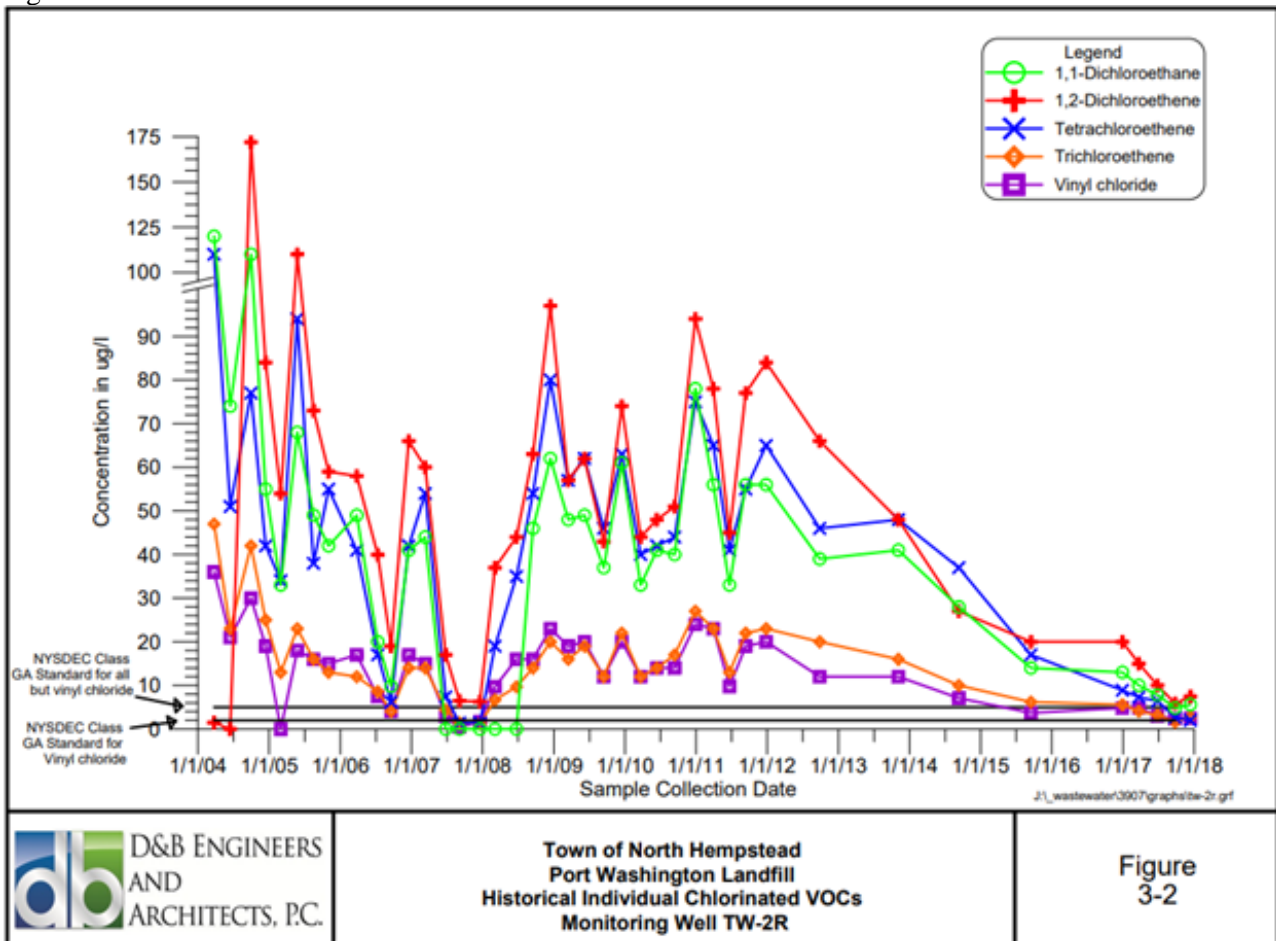


Figure 2:



D&B ENGINEERS AND ARCHITECTS, P.C.

**Town of North Hempstead
Port Washington Landfill
Historical Individual Chlorinated VOCs
Monitoring Well TW-2R**

Figure 3-2