October 23, 2013

ALTERNATIVES ANALYSIS REPORT (AAR)/ REMEDIAL ACTION WORK PLAN (RAWP) FOR OPERABLE UNIT 2 (OU-2)

Former Thypin Steel, Inc. Facility
Manorhaven, New York

Prepared for:

MBA – MANORHAVEN, LLC
215 Nassau Street
Princeton, New Jersey 08540

ROUX ASSOCIATES, INC.

Environmental Consulting & Management

ROUX

and REMEDIAL ENGINEERING, P.C.

209 Shafter Street, Islandia, New York 11749 ♦ 631-232-2600

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CERTIFICATION

Certification by Remedial Engineering, P.C.

I, Charles J. McGuckin, P.E., certify that I am currently a NYS registered professional engineer and that this Alternatives Analysis Report/Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Charles J. McGuckin, P.E.	October 23, 2013	
NYS Professional Engineer #069509	Date	Signature

STATE OF NEW YORK
CHARLES J. MCGUCKIN
069509
LICENSED PROFESSIONAL ENGINEER

ACRONYM AND UNIT DEFINITIONS

1,1 DCA	1,1 dichloroethane
1,2 DCE	1,2 dichloroethene
AFCEE	Air Force Center for Environmental Excellence
AWQSGVs	Ambient Water Quality Standards and Guidance Values
bls	Below land surface
bsl	Below sea level
cm/sec	Centimeters per second
CVOCs	Chlorinated Organic Compounds
FER	Final Engineering Report
FID	Flame Ionization Detector
FT..........................	Feet
GRA	General Response Action
HAZWOPER	Hazardous Waste Operations and Emergency Response
ISCO	In Situ Chemical Oxidation
kg/L	Kilograms per liter
mg/kg	Milligrams per kilogram, equal to 1,000 μg/kg
NYSDEC	New York State Department of Environmental Conservation
NYSDOH.............	New York State Department of Health
OU	Operable Unit
PCE	Tetrachloroethene
ppm	Parts per million, equivalent to mg/kg
RAOs	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
ROI	Radius of Influence
RSCO	Recommended Soil Cleanup Objective
SCGs	Standards, Criteria and Guidance
SF	Square Feet
SMP	Site Management Plan
TCA	1,1,1-tricholorethane

ACRONYM AND UNIT DEFINITIONS

TCE .... Trichloroethene

USGS .... United States Geological Survey

VOCs .... Volatile Organic Compounds

1.0 INTRODUCTION

On behalf of MBA-Manorhaven, LLC (MBA), Roux Associates, Inc. and its associated firm, Remedial Engineering P.C. (Roux Associates) have prepared this ***Operable Unit 2 (OU-2) Alternatives Analysis Report (AAR)/Remedial Action Work Plan (RAWP)*** for the former Thypin Steel, Inc. Plant in Manorhaven, New York. The former Thypin Steel Plant property is referenced as the MBA Site and its environmental media is designated as Operable Unit 1 (OU-1). The subject of this AAR/RAWP is OU-2 defined as all offsite environmental media, and the investigations conducted to evaluate offsite conditions at the Toms Point Property and Manhasset Bay. The location of the MBA Site is shown on Figure 1.

This RAWP summarizes the nature and extent of contamination determined from data gathered during the Remedial Investigation (RI), performed between November 2005 and August 2006. It provides an evaluation of remedial alternatives, and presents the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in the New York State Department of Environmental Conservation (NYSDEC) DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC, 2010) and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements.

1.1 Site Description

The Toms Point property is located to the south of the MBA Site. Manhasset Bay is located to the west of the MBA Site and to the west, south, and east of Toms Point. Toms Point and Manhasset Bay are located hydraulically downgradient of the identified impacted areas at the MBA Site and are the subject areas for the offsite OU-2 investigations.

The Toms Point property is approximately six acres in size and includes eight, 2-story residential buildings separated with landscaped common and asphalt parking areas. The buildings were built between 1965 and 1966 and vary in size from 5,000 to 14,000 square feet (sf), as shown on Figure 2. Buildings 3 and 6 occupy the smallest area with 5,000 sf, Buildings 5 and 7 are intermediate sized at 9,000 sf, and Buildings 1, 2, 4 and 8 are the largest at 14,000 sf.

Each of the buildings has a basement that underlies the entire building. The basements of the intermediate sized buildings have one crawl space, the larger sized buildings have two crawl spaces, and the smaller buildings do not have a crawl space. The crawl spaces, when present, underlie approximately one-third of the building and are present beneath only one wing of each intermediate sized building and are present beneath both wings of the larger sized buildings. All of the crawl spaces contain building supports, utility lines, and an uneven concrete floor, which rises approximately four feet above the typical basement floor level. The remaining portions of the basement are partitioned with cinder-block walls and have sheet-rock ceilings.

With the exception of the north property boundary, the Toms Point property is surrounded on the three remaining east, west, and south sides by Manhasset Bay and has a steel sheet-piling bulkhead that was installed in 1983 (Figure 2). Historical wooden bulkhead was constructed at various times through the development of the property and it is believed that it is still present inland of the existing steel sheet-piling bulkhead (Einsidler, 2006).

1.2 Hydrogeological Conditions

The water table is approximately 10 feet below land surface (ft bls) beneath the Toms Point property. The groundwater flow direction is generally to the south along the OU-1/OU-2 boundary, but there is a change in groundwater flow to the southwest, beneath the Toms Point property. This change in groundwater direction may be due to tidal influence or anomalies related to the presence of the current steel sheet-piling bulkhead or historic seawalls that may be present beneath the Toms Point property (Roux Associates, 2006).

The shallow subsurface is typically composed of disturbed, brown sand strata (i.e., fill material), which is present throughout the MBA Site and the northern portion of the Toms Point property, with a maximum depth of 5 ft bls. The fill material is unsaturated and characterized as predominantly fine to coarse sand with trace amounts of asphalt and brick materials. Underlying the fill material is orange/tan sand strata, with a depth of approximately 60 ft bls. The sand strata is characterized by its orange-brown to tan color, fine to coarse grain-size, with varying amounts of silt and gravel. In those areas of the Toms Point property where earlier groundwater sampling was conducted by Roux Associates, the water table appeared to be located near the top of the sand strata at a depth of approximately 10 ft bls, therefore this unit and those below are saturated.

Based on the findings of the Roux Associates investigation completed in 2000 and the 2005 OU-2 Groundwater Investigation, three groundwater units were identified below OU-1 and OU-2. The three vertical groundwater units that underlie OU-2 are referred to as the shallow zone, intermediate zone, and deep aquifer.

The shallow and intermediate groundwater zones beneath OU-2 are part of the same hydrogeologic formation, but are distinguished from each other by the composition of the formation. The "shallow zone" extends from the water-table (approximately 10 ft bls to 20 ft bls). The composition of the sand within the shallow aquifer zone is relatively uniform but the formation is tighter and denser with depth.

Based upon geologic conditions and analytical data, the interval between 20 ft and 60 ft bls is considered the "intermediate zone". The upper intermediate zone is also composed of sand, but becomes increasingly tighter with depth from the 20 ft to 35 ft bls interval. The tightness of the formation and higher organic carbon content within the deeper intermediate aquifer zone limits the migration of contamination. Underlying the deeper intermediate zone is a silt/clay confining unit that extends to approximately 105 ft bls. Beneath the confining unit, the deep aquifer is present.

2.0 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

The objective of the OU-2 investigations was to investigate the offsite environmental media located downgradient of impacted areas of OU-1. The offsite groundwater investigation was performed in accordance with the scope of work presented in the NYSDEC-approved *Offsite Groundwater Investigation Work Plan*, dated April 18, 2005. The soil vapor and indoor air investigation was performed in accordance with the NYSDEC-approved *Toms Point Property Air Quality Investigation Work Plan*, dated June 16, 2006. The intertidal sediment investigation was performed in accordance with the NYSDEC-approved *Intertidal Sediment Sampling Work Plan*, dated July 15, 2011. OU-2 investigations were performed between November 2005 and July 2011.

The principal MBA Site contaminants present within the groundwater and soil vapor beneath the MBA Site are chlorinated volatile organic compounds (CVOCs), with the primary seven compounds of concern being 1,1,1-trichloroethane (TCA), tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethane, 1,1- dichloroethene, cis-1,2-dichloroethane, and vinyl chloride. The CVOCs are present within the shallow and intermediate zones of the aquifer. The CVOCs were found in lower concentrations and less widespread distribution within the shallow zone beneath the MBA Site, being mostly non-detected at the property boundary shared with the Toms Point property.

2.1 Summary of Offsite Investigation – November 2005 to February 2006

In accordance with the Offsite Groundwater Investigation Work Plan, this investigation consisted of the collection and screening of soil samples from six soil borings, the collection of 20 groundwater samples from six water quality borings, and the collection of six soil gas samples from locations immediately adjacent to the groundwater sample locations. The sampling locations are shown on Plate 1. The groundwater samples were collected from temporary water quality borings and not from permanent groundwater water monitoring wells because access to install permanent wells within OU-2 (Toms Point property) was denied, as per letter correspondence from the Tom's Point property owner, dated July 10, 2007.

Soil

Soil samples were screened with a flame ionization detector (FID) every two feet to the depth of the water table (approximately 10 ft bls) and to the maximum boring depth at OSB-1 and OSB-4 (Figure 2). The only FID detection was identified at OSB-4 in the 6 to 8 ft bls interval at a concentration of 104 parts per million (ppm). In accordance with the approved work plan, a soil sample from this interval was submitted for laboratory analysis. MBA-related CVOCs were not detected in the soil sample. The analysis results identified detections of acetone, methyl chloride, and toluene but each below the respective NYSDEC Recommended Soil Cleanup Objective (RSCO), which were the appropriate soil cleanup values at that time. For current evaluation purposes, the soil sample has also been compared to the Part 375 unrestricted use soil cleanup standards. Soil data is presented on Table 1.

Groundwater

Water-quality borings were advanced to a maximum depth of 75 ft bls. CVOCs were identified at each sampling location and primarily within the intermediate zone aquifer in OU-2, at increasing depths as samples were collected farther away from OU-1. Sampling locations and groundwater data are presented on Plate 1 and Table 2.

TCE was detected at each boring location at concentrations exceeding the NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGVs). OSB-6 is the only location to exhibit TCE concentrations above the AWQSGVs in both the shallow and intermediate zones. Only one shallow zone sample (OSB-6) at the 15 feet bls sampling interval slightly exceeded the AWQSGV for TCE at a concentration of 8.5 micrograms per liter (µg/L). The highest concentrations of TCE were noted in borings OSB-1 and OSB-6, at concentrations of 5,500 µg/L and 2,400 µg/L, respectively. This finding in the intermediate zone appears to identify a hydraulic gradient trending from the northwest to the southeast.

The only exceedance of the AWQSGV for PCE was detected at OSB-2 in the 30 ft bls sample at a concentration of 110 µg/L. Additionally, non-MBA Site related petroleum compounds were identifed in groundwater samples collected from OSB-4, OSB-5, and OSB-6.

Soil Gas

The concentrations detected in the soil gas samples were well below the sub-slab soil gas guidance criteria for PCE, TCE, and TCA provided in the NYSDOH guidance matrices. CVOCs were detected within all of the soil gas samples collected, however poor correlation was determined between the compounds detected in groundwater and the compounds detected in soil gas at the same sample location. OSB-1 was the only sampling location where TCE was detected in the soil gas and the water table groundwater sample. Soil gas data is presented on Table 3.

2.2 Summary of Offsite Air Quality Investigation – August 2006

In August 2006, eight sub-slab soil vapor and indoor air samples and one outdoor air sample were collected in OU-2. The sub-slab soil vapor samples, SS-1 through SS-8, were collected from Buildings 1 through 8, respectively. The indoor air samples, IA-1 through IA-8, were collected from Buildings 1 through 8, and the outdoor ambient air sample, AMB-1, was collected adjacent and to the north of Building 1. In addition, indoor air surveys were completed within the meter room of each basement where the samples were collected. Sampling locations are shown on Figure 2 and analytical data are presented on Tables 4 and 5.

Concentrations of VOCs in soil vapor and indoor air were detected at all eight sampling locations, including compounds that were not MBA Site-related CVOCs or their associated breakdown products. The non-CVOCs that were detected within the soil vapor, indoor and outdoor air samples primarily include petroleum-related compounds and refrigerants. Based upon the lack of a transport mechanism, the petroleum-related compounds detected during this investigation do not appear to be related to the MBA Site.

The NYSDOH decision matrices were utilized to evaluate the potential for soil vapor intrusion by comparing sub-slab soil vapor concentrations with indoor air concentrations. The results of the investigation indicated that either no further action was required or reasonable and practical actions should be taken to identify sources in the buildings. Based up on the NYSDOH guidance matrices, the MBA Site-related compounds detected in the indoor air samples are likely due to indoor and/or outdoor sources rather than soil vapor intrusion given the concentrations detected in the sub-slab vapor sample.

2.3 Intertidal Sediment Sampling

At the request of the NYSDEC in a letter dated June 16, 2011, Roux Associates performed intertidal sediment sampling at two locations along the coast of Manhasset Bay. As described in the *Intertidal Sediment Sampling Summary Report* (ISS-SR), dated September 9, 2011, the intertidal sediment sampling activities were conducted to better understand the shallow subsurface sediment conditions (i.e., 0-2 ft bls) at the intertidal zone along the southwest portion of OU-1, as a consideration for possible beachgoers. Two sediment samples were collected (IS-1 and IS-2). All intertidal sediment sampling activities were conducted in accordance with the *Intertidal Sediment Sampling Work Plan,* dated July 15, 2011, which was approved by the NYSDEC in their email correspondence dated July 20, 2011. The intertidal sediment data is presented on Tables 6 through 8.

The analytical data was compared to the NYSDEC Part 375 unrestricted use standards. Individual VOC and SVOC compounds were either not detected or detected at levels that did not exceed the NYSDEC Part 375 unrestricted use standards in both intertidal sediment samples. Metals were detected in both of the intertidal sediment samples; however, there were no exceedances of the NYSDEC Part 375 unrestricted use standards.

Based on the analytical data collected from both intertidal sediment samples, Roux Associates recommended no further intertidal sediment samples were warranted, which was approved by the NYSDEC in a letter dated October 5, 2011.

2.4 Conceptual Model of Offsite Contamination

The investigations discussed above were performed to identify any migration of contamination from the MBA Site (OU-1) onto the Toms Point Property and Manhasset Bay (OU-2). The CVOC groundwater contamination for this area is likely the result of approximately 70 years of commercial and industrial manufacturing, use by multiple entities other than the Thypin Realty Company, the Thypin Steel Company or MBA Manorhaven, LLC. Although there is limited information on the historical use of the Tom's Point Property (OU-2), the detections of petroleum-related compounds (Cyclohexane, Ethylbenzene, Heptane, Hexane, Toluene and Xylenes) in soil and soil gas samples collected within OU-2 indicates additional sources including, but not limited to, fill material and other offsite sources, not related to historical operations within

OU-1, may be potentially contributing to OU-2 contamination. However, the conceptual site model for the offsite CVOC contamination specifically (the focus of this report) would be consistent with that of the upgradient source area within OU-1, as presented below.

According to a 1945 Plot Plan, three 20 ft diameter leaching wells, an unknown number of leaching chambers, and 84 sanitary leaching wells were identified in the northwestern portion of OU-1. Leaching structures at manufacturing facilities on Long Island during this time period (1940s) were commonly used for the discharge of process wastes to the subsurface. The process wastes from the types of operations conducted during this time period in OU-1 would likely include metals plating solutions/sludge, chlorinated solvents, anti-corrosion paints (such as zinc chromate paints), and metal-contaminated pickling acids, which are typically used in the manufacturing of airplanes and engine parts.

Republic Aviation Corporation began operations in OU-1 in 1951 and the site features of a 1951 Sanborn map are similar to those features of the 1945 Plot Plan, during the tenure of Grumman. Based on the similar nature of their operations, it is likely that Republic Aviation utilized the same buildings and subsurface structures (e.g., leaching wells) as Grumman.

No new construction occurred when the Thypin Realty Company took ownership of OU-1 in 1958, and they utilized the existing buildings from the previous tenants. No fill material was placed at OU-1 when the Thypin Realty Company took ownership or during site usage after 1958. The Thypin Steel Company utilized OU-1 for the storage and cutting of steel products, which they did for their entire tenure (1958 through 1988). According to Mr. Richard Thypin, the cutting operations utilized cutting oils for lubrication and no plating, painting or metal washing was performed by the Thypin Steel Company. Therefore, there was no need for CVOCs to be stored or used at OU-1.

Despite the completion of several intensive site investigations over a nine year period (including geophysical surveys, test pitting, soil and groundwater sampling, and membrane interface probe technology) and review of historical site usage information (including Sanborn Insurance Maps, aerial photographs, Site schematics, and other miscellaneous documents), the contaminated soil source area of the CVOC contamination in groundwater has not been identified. This is despite locating, uncovering, and investigation of numerous subsurface leaching structures. Several explanations are possible to explain the lack of source areas identified. The possibility exists that historical releases occurred to the porous sandy shallow soil and there is no longer any evidence of the release after decades of flushing by rainwater or the exact location was never found with a specific sampling location (all structures were demolished prior to the start of Roux Associates' investigation). It is also possible that the discharges occurred through some of the 84 drywells reportedly removed prior to Roux Associates' involvement or the subsurface structures that were sampled by Roux Associates no longer contained the CVOCs, after decades of flushing by rainwater. The NYSDEC and NYSDOH have both agreed, no additional source area investigation was warranted.

The predominant CVOC present within the groundwater is TCE. Other CVOCs of concern that have been detected include PCE, TCA, 1,2 dichloroethene (1,2 DCE), and 1,1 dichloroethane (1,1 DCA). The majority of the mass and the highest concentrations of CVOCs are located in the intermediate aquifer zone. This is believed to be due to the fact that the intermediate zone is a tighter, silty formation, and the contamination was more likely to sorb onto the finer grained particles.

3.0 FATE AND TRANSPORT MODEL

An analytical solute transport and natural attenuation model was created as a conservative screening method to assess the potential for contaminant migration from OU-1 towards offsite sensitive receptors and to assess the overall fate and transport of the CVOCs in groundwater beneath the OU-1 and OU-2. The goal of the modeling efforts was to determine if CVOCs in groundwater may migrate to the nearest public supply wells. Additionally, the modeling efforts were used to assess the influence of natural attenuation on the fate of the contaminant plume over time. These simulations were run with the most conservative model (i.e., no natural attenuation of CVOCs) and give a likely worst case scenario. The fate and transport model simulations and data input sheets were provided in the *Alternatives Analysis and Remedy Evaluation Report for OU-1 Groundwater, dated August 12, 2013 (AA/RER for OU-1).*

Two potable water supply wells (N4860 and N6087) were identified as the nearest potential sensitive receptors, existing approximately 2,700 feet to the east-southeast of the MBA Site. N4860 and N6087 are screened within the upper glacial aquifer with screen intervals of 42 to 71 feet below sea level (ft-bsl) and 43 to 72 ft-bsl, respectively (USGS, 1992).

The modeling task was completed using BIOCHLOR (USEPA, 2000), an analytical solute transport model used to predict dissolved-phase plume migration of chlorinated solvents (i.e., CVOCs) and used as a natural attenuation screening tool for chlorinated solvent release sites. The BIOCHLOR software was developed by Groundwater Services, Inc. of Houston, Texas for the Air Force Center for Environmental Excellence (AFCEE) and was further customized and tested by members of Battelle Pacific Northwest Laboratory, Richland, Washington. The BIOCHLOR software is programmed in a Microsoft© Excel Spreadsheet and is currently distributed by the USEPA.

The BIOCHLOR model is based on the Domenico analytical solute transport model and has the ability to simulate 1-Dimensional advection, 3-Dimensional dispersion, linear adsorption, and biotransformation via reductive dechlorination. Reductive dechlorination is assumed to occur under anaerobic conditions and solvent degradation is assumed to follow a first-order decay process. BIOCHLOR includes three model types, including solute transport without decay, solute transport with biotransformation modeled as a sequential first-order decay process, and solute transport with biotransformation modeled as a sequential first-order decay process with different reaction zones.

As an analytical model, BIOCHLOR assumes simple groundwater flow conditions (i.e., horizontal laminar flow in one direction) and assumes uniform hydrogeologic and environmental conditions (i.e., modeled saturated zone is homogeneous and isotropic). Additionally, BIOCHLOR is primarily designed for simulating the sequential reductive dechlorination of chlorinated ethanes and ethenes, and therefore, the biotransformation feature in BIOCHLOR is appropriate for the CVOCs found at the MBA Site, which degrade via first-order decay. For additional information regarding modeling limitations and a more detailed description of the fundamentals of natural attenuation, users should refer to the BIOCHLOR user's manual (USEPA, 2000).

3.1 Model Parameters

The following section discusses the development of the BIOCHLOR input parameters. The model was based on historical OU-1 data, and recent data collected as part of the remedial efforts at the MBA Site. Where OU-1 specific data was unavailable, typical values from literature sources were used as inputs to the model.

3.1.1 Groundwater Flow

Groundwater flow parameters including hydraulic gradient, hydraulic conductivity and effective porosity are used in the BIOCHLOR model to estimate a seepage velocity. The seepage velocity parameter is used for calculation of advection in the analytical transport model equation. Based on groundwater elevation data collected during the March 16, 2010 comprehensive gauging round, which was the latest and most comprehensive gauging data available, groundwater flow at the MBA Site is generally to the south/southwest direction towards Manhasset Bay, which is consistent with previous investigation gauging data. The horizontal hydraulic gradient across the MBA Site is approximately 0.0011 ft/ft. In general, groundwater within the shallow aquifer system (i.e., upper glacial aquifer) beneath Manhasset Neck is flowing away from the land mass toward Manhasset Bay on the west side of Manhasset Neck and toward Hempstead Harbor on the east side of Manhasset Neck.

The hydraulic conductivity in the intermediate zone was estimated based upon lithologic data collected during soil boring activities at the MBA Site. The lithologic data indicates that the intermediate zone of the aquifer is primarily composed of fine sand to silty material. A hydraulic conductivity of 15 ft/day, or 5.3 X 10-3 cm/sec, was selected for use in the model, corresponding to fine sand (Freeze and Cherry, 1979). This value was selected as a conservative value in respect to evaluating potential contaminant migration, because the value is on the higher end of the range of hydraulic conductivities for fine sand.

Effective porosity was also estimated based on the lithologic data. A value of 0.35 was selected to be used in the model, which corresponds to an average value for sandy material (Fetter, C.W., 1994).

3.1.2 Dispersion

Dispersion is the process where a dissolved solvent will be spatially distributed longitudinally, transversely, and vertically as a result of mechanical mixing and chemical diffusion in the aquifer. Dispersion is difficult to measure in the field, and therefore is typically estimated based on the length of the contaminant plume observed in field data. Values for horizontal (x), transverse (y), and vertical (z) dispersion were estimated for this model based on a plume length of 250 feet. Plume length is approximate and based on CVOC groundwater concentrations observed in the area of highest concentration found within OU-1.

Lithologic data collected from soil borings indicate that the MBA Site is underlain by a zone of low permeability material. The low permeability material effectively limits the vertical migration of contaminants. The model was assigned a saturated thickness of 25 feet based on the distance from the water table to the top of the low permeability material.

3.1.3 Adsorption

Adsorption to the soil matrix can reduce the concentration of the dissolved contaminants moving through the groundwater. Adsorption is incorporated into the BIOCHLOR model through a retardation factor that can be entered directly or calculated using soil bulk density (rho), organic carbon fraction (foc), and partition coefficient (koc) parameters. For this modeling task, the retardation factor was calculated with values selected based on published literature data. The soil bulk density parameter was assigned a value of 1.6 kg/L based on data provided by the U.S. Department of Agriculture for loamy sand material. The organic carbon fraction parameter was assigned a value of 0.0002, which is a conservative value based on the values provided in the BIOCHLOR user's manual (EPA, 2000). The values selected for the partition coefficient parameter for each chlorinated solvent were based on values provided in the USEPA technical document titled Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater (USEPA, 1998).

3.1.4 Biotransformation

As described above, the BIOCHLOR model utilizes a first-order decay process for dissolved constituents. The rate of biotransformation of dissolved constituents under first-order decay is dependent on the initial concentration of the contaminant and a rate coefficient (λ) parameter for each individual chlorinated solvent. The rate coefficient is calculated based on the half-life on the contaminant in groundwater. For this task, the rate coefficient utilized for each chlorinated solvent was selected based on values provided in the BIOCHLOR user's manual (EPA, 2000). The following values were utilized in the model for the coefficient parameters:

PCE → TCE = 0.70
TCE → DCE = 0.50
DCE → VC = 0.18
VC → ETH = 0.12

The values selected for the rate coefficient are at the low to middle of the range of values provided in the literature, and therefore should be considered conservative values in respect to calculating potential degradation of the chlorinated solvents in the model.

The initial contaminant concentrations used in the model were selected based on review of historical groundwater sampling results. The highest concentration measured historically for each chlorinated solvent in OU-1 was selected as the initial concentration input to the model for the respective solvent. The initial concentrations input to the model are:

PCE = 0.21 mg/L
TCE = 8.9 mg/L
DCE = 0.32 mg/L
VC = 0.36 mg/L
ETH = 0.00 mg/L

Selecting the highest historical concentration for the initial input value is a conservative method that will yield the highest final concentration value at the end of the model simulation. However, actual concentrations measured in future groundwater samples would likely be less than predicted by the model as a result of past remedial actions at OU-1.

3.2 Model Results

The model was run with simulation times of 10 years, 20 years, and 30 years in order to assess potential migration over time. Results indicate that initial concentrations will decrease by more than an order of magnitude over the 30 year period. Results of the simulations (assuming no decay) indicate that after 30 years, peak TCE concentrations of approximately 0.50 mg/L would be observed at a down gradient distance of approximately 500 feet. Results of the same simulation indicate that non-detect concentrations for all chlorinated solvents would be observed within 1,500 feet of Area 1 within OU-1. As stated above, since the highest concentrations detected were used for the model, 1,500 feet is an overestimation.

The MBA Site is bordered by a large body of water (Manhasset Bay) to the west. Based on the groundwater flow direction and the results of the model simulations as well as previous investigation activities, the dissolved phase constituents observed at the MBA Site are likely reaching Manhasset Bay to the south-southwest. However, intertidal sediment sampling along southwest shoreline of Manhasset Bay has indicated that there were no CVOC detections within the shallow subsurface, related to the migration of contaminates from the MBA Site. The contamination reaching Manhasset Bay is not likely to migrate under any adjacent land mass (i.e., Great Neck peninsula) since the groundwater gradient beneath the adjacent land mass indicate groundwater is flowing away from the land mass, toward the surrounding bodies of water, i.e., Manhasset Bay. Similarly, the results of the model simulation indicate there is no potential for the contamination beneath the MBA Site to impact the public supply wells N4860 and N6087, which are located approximately 2,700 feet to the east-southeast from the Site. As described above, N4860 and N6087 are screened within the upper glacial aquifer with screens interval of 42 to 71 feet below sea level (ft-bsl) and 43 to 72 ft-bsl, respectively (USGS, 1992). However, the model simulation indicates that there will be non-detect concentrations for all chlorinated solvents at a distance of 1,500 feet from Area 1 of the MBA Site. The groundwater gradient beneath Manhasset Neck will likely prohibit the contamination from migrating toward the wells; since the groundwater is flowing away from the wells, in the direction of the MBA Site. More importantly, the fate and transport model also demonstrates that there was no risk of contamination reaching the public supply wells, even before any remedial action took place at the Site.

The maximum capture zone of public supply wells N4860 and N6087 is approximately 1,180 feet. Thus, the MBA Site is approximately 2,700 feet from the wells and not within the public supply well's radius of influence (ROI). Although, if OU-1 groundwater was within the ROI of the public supply wells, the wells would likely be shut down; due to high salinity levels caused by known saltwater intrusion; before OU-1's groundwater reached the wells. As indicated in the United States Geological Survey (USGS) *Simulation of Variable-Density Ground-Water Flow and Saltwater Intrusion beneath Manhasset Neck, Nassau County, New York, 1905-2005* report, there has been an extensive saltwater intrusion investigation conducted for the groundwater beneath Manhasset Neck. USGS has identified the area of the public supply wells, which they indicate as saltwater wedge B, as having experienced saltwater intrusion due to historical excessive groundwater pumping (Monti, 2009). Historically, one deep water well (N35), which was located within the well field of N4860 and N6087 was shutdown in 1944 due to elevated chloride concentrations (Monti, 2009).

4.0 REMEDIAL GOALS AND REMEDIAL ACTION OBJECTIVES

This section presents the remedial goals and remedial action objectives (RAOs) that apply to groundwater and soil vapor in OU-2. The remedial goal for all VCP sites is to remediate the site to a level that is protective of public health and the environment for the Contemplated use of the property (NYSDEC, 2002). The current and future use of the Tom's Point portion of OU-2 will remain residential and the remainder of OU-2 is Manhasset Bay.

The remedial goal serves to establish the foundation for developing RAOs specific to the impacted media in OU-2. RAOs are medium-specific objectives developed for the protection of public health and the environment and are expressed with regard to the concentration of COCs and comparison to chemical-specific standards, criteria, and guidance (SCGs).

General response actions (GRAs) are media-specific measures that can be performed to achieve the RAOs. GRAs include treatment, containment, extraction, excavation and disposal, institutional controls, or a combination of these actions. The following sections outline the applicable SCGs, present the RAOs for each media of concern, and identify media-specific GRAs.

4.1 Identification of Standards, Criteria, and Guidance

SCGs are promulgated requirements and non-promulgated guidance that govern activities that may affect the environment. Specifically, the standards and criteria are cleanup standards, standards of control and other substantive environmental protection requirements, criteria, or limitations that are generally applicable, consistently applied, and officially promulgated under federal or state law that are directly applicable, or relevant and appropriate to a contaminant, remedial action, location, or other circumstance. Guidance is not a legal requirement, however should be considered based on professional judgment when applicable (NYSDEC, 2010).

SCGs for Groundwater

The applicable SCGs for groundwater are the following:

- Water Quality Standards for Surface Waters and Groundwater (6 NYCRR 703.5)
- NYSDEC AWQSGVs for Class GA groundwater (NYSDEC TOGS 1.1.1)

SCGs for Soil Vapor

The NYSDOH soil vapor intrusion guidance document (NYSDOH, 2006) provides decision matrices to evaluate the potential for soil gas intrusion by comparing sub-slab soil gas concentrations with indoor air concentrations for the three compounds of concern: PCE; TCE; and TCA. Depending on the concentrations of both sub-slab soil gas and indoor air samples, the guidance document recommends no further action, take reasonable and practical actions to identify source(s) and reduce exposures, provide future monitoring of indoor air concentrations or to mitigate the potential exposures to soil vapor.

SCGs for Intertidal Sediment

The applicable SCG for analysis of intertidal sediment sample data are the NYSDEC Part 375 unrestricted use standards.

4.2 Remedial Action Objectives

The RAOs for OU-2 are consistent with the RAOs for OU-1 that were previously defined in the OU-1 Remedial Action Work Plan Report, dated August 18, 2005 and were approved by the NYSDEC on May 3, 2006. The RAOs consist of the following:

- Reduce concentrations of CVOCs in shallow groundwater to the NYSDEC AWQSGVs, to the extent practicable; and
- Obtain mass reduction of CVOCs onsite and mitigate offsite impacts of CVOCs in the intermediate groundwater zone to the NYSDEC AWQSGVs, to the extent practicable.

4.3 Remedial Requirements

Based on the above SCGs evaluation and established RAOs, the following summarizes the extent of contamination to be addressed in OU-2:

Groundwater

- CVOC concentrations exceed the applicable AWQSGVs at each OU-2 sampling location in the intermediate groundwater zone.
- Concentrations at OSB-1 (located near the OU-1/OU-2 boundary) and OSB-6 (located downgradient of OSB-1) support the identification of a hydraulic gradient trending from the northwest to the southeast.

The above summary supports the finding that CVOCs have migrated to OU-2 from OU-1. Groundwater contamination has been addressed in OU-1, as documented in the *AA/RER for OU-1*. Therefore, the RAO specifying mitigation of offsite impacts has been performed and active groundwater remediation will not be evaluated in this report. However, groundwater monitoring will be evaluated.

Soil Vapor

As determined by the NYSDOH guidance matrices, the MBA Site-related CVOCs detected in the indoor air samples are likely due to indoor and/or outdoor sources rather than soil vapor intrusion given the concentration detected in the sub-slab vapor sample. The results indicated that either no further action was required or reasonable and practical actions should be taken to identify sources in the buildings within the Toms Point property. Given that the source of indoor air detections does not appear to be associated with MBA-related CVOCs in the subsurface, soil vapor will not be further evaluated in this report.

Intertidal Sediment

The intertidal sediment sampling investigation did not identify any VOCs or SVOCs in exceedance of the SCGs. NYSDEC agreed that no additional sampling was required. Therefore, intertidal sediment will not be further evaluated in this report.

4.4 General Response Actions

GRAs are non-technology specific measures that can be performed to achieve the RAOs. GRAs include treatment, containment, extraction, excavation and disposal, institutional controls or a combination of these actions.

As discussed above, the CVOC impacts to groundwater have been mitigated by the OU-1 remediation. For this reason, active GRAs have not been selected for OU-2 groundwater. The applicable GRAs for groundwater include:

- Institutional and Engineering Controls
- Groundwater Monitoring

5.0 DEVELOPMENT AND ANALYSIS OF ALTERNATIVES

The remedial alternatives that have been developed for evaluation include the No Further Action alternative and an alternative that will monitor groundwater impacts in OU-2. The remedial alternatives for OU-2 groundwater include:

- Remedial Alternative 1: No Action
- Remedial Alternative 2: Groundwater Monitoring, Engineering Controls

Remedial alternatives are evaluated based on nine specific criteria. The results of this assessment are used to comparatively evaluate the alternatives to determine which is most appropriate for implementation. The nine criteria are provided in 6 NYCRR 375-1.8(f) and NYSDEC's DER-10 (NYSDEC, 2010), and consist of the following:

- Overall protection of public health and the environment
- Compliance with SCGs
- Long-term effectiveness and permanence
- Reduction of Toxicity, Mobility or Volume
- Short-term effectiveness
- Implementability
- Cost
- Land Use
- Community Acceptance

Overall protection of public health and the environment and compliance with SCGs are termed threshold criteria, whereas the remedial alternative must meet these requirements in order to be eligible for selection. The next seven criteria are termed primary balancing criteria and are used as the primary basis of comparison in selecting the recommended remedial alternative. In accordance with NYSDEC's Voluntary Cleanup Program Guide (NYSDEC, 2002), cost effectiveness, land use, and community acceptance are not required in the evaluation of VCP sites. Therefore, cost evaluation, land use, and community acceptance will not be included in the analysis.

The following sections provide a description of the two remedial alternatives that were developed to address groundwater and evaluate the alternatives based on the six evaluation criteria.

5.1 Remedial Alternative 1: No Further Action

In accordance with DER-10, a no further action alternative is evaluated to provide a baseline for comparison of potential risks posed if no remedial action were performed. For this remedial alternative, no measures to mitigate exposure to impacted groundwater would be implemented.

5.1.1 Overall Protection of Human Health and the Environment

Remedial Alternative 1 would be protective to human health and the environment. As demonstrated in the *AA/RER for OU-1,* the RAO of obtaining mass reduction of CVOCs onsite and mitigating impacts of CVOCs in OU-2 intermediate groundwater zone have been accomplished to the extent practicable. The fate and transport model demonstrated that mass reduction accomplished by the remediation has mitigated risk for the Tom's Point Property residences and there is no risk of contamination reaching the public supply wells. Furthermore, intertidal sediment sampling has confirmed that contaminants are not impacting shallow sediment and do not pose a risk to possible beachgoers.

Although risks posed through potential pathways of exposure are not controlled through the use of formally documented engineering controls, Toms Point is a fully developed property. Groundwater impacts are primarily over 20 feet bls in the saturated zone to which any minor future construction (e.g., utility modifications) would not extend to this depth. The soil gas investigation demonstrated that vapor intrusion was not evident and detected concentrations in indoor air were attributed to indoor/outdoor sources. Lastly, groundwater is not used as a drinking water source at this location. Each of these engineering/institutional controls provides protection to human health and the environment.

5.1.2 Compliance with SCGs

All of the shallow zone groundwater sampling locations were in compliance with the AWQSGVs, with exception of one location. Shallow zone sample (OSB-6) at the 15 feet bls sampling interval slightly exceeded the AWQSGV for TCE at a concentration of 8.5 micrograms per liter (µg/L). Each intermediate zone groundwater sampling location exhibited TCE concentrations in excess of the AWQSGVs. However, as demonstrated in the *AA/RER for OU-1*, the cumulative remedial efforts used for CVOC removal in OU-1 have been effective. Efforts to further mitigate offsite migration of intermediate groundwater to OU-2 have proven to be technically impracticable from an engineering perspective and concentrations have been reduced to the maximum extent practicable.

5.1.3 Short Term Impacts and Effectiveness

Since there are no actions proposed for this alternative and there is no associated construction implementation period, there are no associated short-term effects to human health and the environment.

5.1.4 Long Term Effectiveness and Permanence

For contaminants that will remain onsite, this evaluation criterion evaluates the magnitude of remaining risks, the adequacy and reliability of institutional and engineering controls in limiting risk, and the ability to meet the RAOs in the future. The No Further Action alternative would not reduce the magnitude of exposure risk. With the exception of existing engineering controls (i.e., fully developed property), no formal institutional and engineering controls would be implemented to enforce any limitations to risk. However, the *AA/RER for OU-1* demonstrated that the in situ chemical oxidation (ISCO) injections performed in OU-1 effectively reduced CVOC concentrations in the intermediate groundwater zone to the extent practicable and the fate and transport model demonstrates that the completed remediation was successful in mitigating risk to the Tom's Point Property residences. Furthermore, Toms Point residents use municipal water for drinking water so groundwater does not pose an exposure risk. The current level of risk to workers would remain if Remedial Alternative 1 is implemented.

5.1.5 Reduction of Toxicity, Mobility, and Volume

This alternative would not be effective in reducing the toxicity, mobility, or volume of impacted groundwater. Effects from natural degradation that would reduce the volume and toxicity of contaminants would be expected over the long term.

5.1.6 Implementability

Implementability concerns posed by this alternative do not exist since there would not be any actions performed. Therefore, this alternative would be readily implementable.

5.2 Remedial Alternative 2: Groundwater Monitoring and Engineering Controls

Remedial Alternative 2 consists of the performance of groundwater sampling and reliance on existing engineering controls. No further active remediation would be performed.

Groundwater Monitoring

Groundwater monitoring would be performed to identify any continued migration and change in exposure risks and monitor the effects of natural degradation of CVOCs. Monitoring would be performed at six onsite clustered monitoring wells located at the OU-1/OU-2 property boundary (MW-26S, MW-26I, MW-30S, MW-30I, MW-2, and MW-2I) (Figure 3). The locations of these wells at the property boundary provide an accurate representation of groundwater flow from OU-1 to OU-2.

Sampling would be performed in years one, three and five. Samples would be submitted for TCL VOCs and data would be reported within three months of sampling. A Groundwater Monitoring Plan would be incorporated into the OU-1 Site Management Plan.

Engineering/Institutional Controls

The implementation of formal engineering/institutional controls is not proposed for this alternative. However, there are several "controls" that already exist in the Tom's Point portion of OU-2 including the following:

- Tom's Point is fully developed with onsite structures, landscaped areas, and pavement. No significant future construction is anticipated.
- Utility work or minor improvements are not expected to be performed at the depth of impacted groundwater (i.e., 20 ft bls) or within saturated soil.
- Groundwater is not used as a drinking water source.

5.2.1 Overall Protection of Human Health and the Environment

Although Remedial Alternative 2 is not an active remediation alternative, this alternative would be protective to human health and the environment and would meet the applicable RAO. As demonstrated in the *AA/RER for OU-1,* the RAO of obtaining mass reduction of CVOCs onsite and mitigating impacts of CVOCs in OU-2 intermediate groundwater zone have been accomplished to the extent practicable. The fate and transport model demonstrated that mass reduction accomplished by the remediation has mitigated risk for the Tom's Point Property residences and there is no risk of contamination reaching the public supply wells. Furthermore, intertidal sediment sampling has confirmed that contaminants are not impacting shallow sediment and do not pose a risk to possible beachgoers.

Although risks posed through potential pathways of exposure are not controlled through the use of formally documented engineering controls, Tom's Point is a fully developed property. Groundwater impacts are primarily over 20 feet bls in the saturated zone to which any minor future construction (e.g., utility modifications) would not extend to this depth. The soil gas investigation demonstrated that vapor intrusion was not evident and detected concentrations in indoor air were attributed to indoor/outdoor sources. Lastly, groundwater is not used as a drinking water source at this location. Each of these engineering/institutional controls provides protection to human health and the environment.

5.2.2 Compliance with SCGs

All of the shallow zone groundwater sampling locations were in compliance with the AWQSGVs, with exception of one location. Shallow zone sample (OSB-6) at the 15 feet bls sampling interval slightly exceeded the AWQSGV for TCE at a concentration of 8.5 micrograms per liter (µg/L). Each intermediate zone groundwater sampling location exhibited TCE concentrations in excess of the AWQSGVs. However, as demonstrated in the *AA/RER for OU-1*, the cumulative remedial efforts used for CVOC removal in OU-1 have been effective. Efforts to further mitigate offsite migration of intermediate groundwater to OU-2 have proven to be technically impracticable from an engineering perspective and concentrations have been reduced to the maximum extent practicable.

Groundwater monitoring associated with this remedial alternative would enable continued evaluation of CVOC concentrations in OU-2, identify any continued contaminant migration and increase in exposure risk, and document natural degradation effects.

5.2.3 Short Term Impacts and Effectiveness

Since there are no actions proposed for this alternative and there is no associated construction implementation period, there are no associated short-term effects to human health and the environment.

5.2.4 Long Term Effectiveness and Permanence

For contaminants that will remain onsite, this evaluation criterion evaluates the magnitude of remaining risks, the adequacy and reliability of institutional and engineering controls in limiting risk, and the ability to meet the RAOs in the future. The No Further Action alternative would not reduce the magnitude of exposure risk. With the exception of existing engineering controls (i.e., fully developed property), no formal institutional and engineering controls would be implemented to enforce any limitations to risk. However, the *AA/RER for OU-1* demonstrated that the ISCO injections performed in OU-1 effectively reduced CVOC concentrations in the intermediate groundwater zone to the extent practicable and the fate and transport model demonstrates that the completed remediation was successful in mitigating risk to the Tom's Point Property residences. Furthermore, Toms Point residents use municipal water for drinking water so groundwater does not pose an exposure risk. The current level of risk to workers would remain if Remedial Alternative 2 is implemented but continued monitoring would identify any change in exposure risk.

5.2.5 Reduction of Toxicity, Mobility, and Volume

This alternative would not be effective in reducing the toxicity, mobility, or volume of impacted groundwater. Effects from natural degradation that would reduce the volume and toxicity of contaminants would be expected over the long term.

5.2.6 Implementability

Groundwater monitoring is easily implementable, utilizing the six existing wells at the OU-1/OU-2 property boundary. The onsite wells are located such that they do not pose an obstruction to any future construction in OU-1 and monitoring will not be disruptive to the Toms Point residents.

5.3 Recommended Remedy

The recommended remedial alternative for OU-2 groundwater is Remedial Alternative 2 – Groundwater and Engineering Controls. Remedial Alternative 2 would include no further active remedial action but provides adequate protection from potential exposure to utility workers and meets the approved RAO applicable to OU-2.

As demonstrated above, both remedial alternatives meet the approved RAO applicable to OU-2 and would provide adequate protection from potential exposure to utility workers. The property is fully developed with buildings, landscaped areas, and pavement. It is highly unlikely that any minor construction, utility repair, or improvements would be performed at the depth of groundwater impacts (i.e., 20 ft bls) or within saturated soil. Lastly, groundwater is not used as a drinking water source. Therefore, under either no further active remedial action scenario, adequate protection from exposure is afforded. However, Remedial Alternative 2 provides an extra measure for groundwater monitoring to identify any change in exposure risk and observe any natural degradation effects.

6.0 REMEDIAL ACTION PROGRAM - GROUNDWATER MONITORING PLAN

The Site Management Plan (SMP) in the Final Engineering Report (FER) will include a post-remedial monitoring plan for groundwater at the down-gradient OU-1/OU-2 property boundary. As discussed in Section 5.2, the groundwater monitoring will be performed to identify any continued migration and change in exposure risks and monitor the effects of natural degradation of CVOCs. Monitoring would be performed at six clustered onsite monitoring wells located at the OU-1/OU-2 property boundary (MW-26S, MW-26I, MW-30S, MW-30I, MW-2, and MW-2I). Details of the sampling plan will be included in the SMP.

7.0 INSTITUTIONAL AND ENGINEERING CONTROLS

After the remedy is complete, residual contamination will remain in place. Engineering/ institutional controls for the residual contamination have not been incorporated into the remedy. The remedy will rely on existing “controls” already integrated into the Tom’s Pont portion of OU-2 development plan. These controls consist of the following:

- Tom’s Point is fully developed with onsite structures, landscaped areas, and pavement. No significant future construction is anticipated.
- Utility work or minor improvements are not expected to be performed at the depth of impacted groundwater (i.e., 20 ft bls) or within saturated soil.
- Groundwater is not used as a drinking water source.

Although the above are not formal administrative controls, the comprehensive SMP will consider the OU-2 engineering controls, as well as the formal institutional and engineering controls in place for OU-1.

8.0 FINAL ENGINEERING REPORT

A FER will be submitted to NYSDEC following approval of this report and the *AA/RER for OU-1*. The FER provides the documentation that the remedial work required under this RAWP and the OU-1 RAWP has been completed and has been performed in compliance with both plans. The FER will be prepared in conformance with DER-10.

The FER will provide a thorough summary of all residual contamination that exceeds the groundwater SCGs defined for OU-2 in the RAWP and will provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of groundwater SCGs and a map that shows residual contamination in excess of groundwater SCGs will be included in the FER.

Respectfully submitted,

ROUX ASSOCIATES, INC.

Jennifer Parisi Kennedy

Jennifer Parisi Kennedy
Senior Engineer

Joseph Dum

Joseph D. Duminuco
Principal Hydrogeologist/
Vice President

REMEDIAL ENGINEERING, P.C.

Charles J McGuckin

Charles J. McGuckin, P.E.
Principal Engineer

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TABLES

Table 1. Summary of Volatile Organic Compounds Detected in Soil Samples
Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in μg/kg)	NYSDEC RSCOs (μg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	OSB-4 / 02/14/06 / 6 - 8
1,1,1-Trichloroethane	800	680		5.6U
1,1,2,2-Tetrachloroethane	600	--		5.6U
1,1,2-Trichloroethane	--	--		5.6U
1,1-Dichloroethane	200	270		5.6U
1,1-Dichloroethene	400	330		5.6U
1,2-Dichloroethane	--	20		5.6U
1,2-Dichloropropane	100	--		5.6U
2-Butanone	300	120		5.6U
2-Chloroethyl vinyl ether	--	--		11U
2-Hexanone	--	--		5.6U
4-Methyl-2-pentanone	1000	--		5.6U
Acetone	200	50		110
Acrolein	--	--		28U
Acrylonitrile	--	--		5.6U
Benzene	60	60		1.1U
Bromodichloromethane	--	--		5.6U
Bromoform	--	--		5.6U
Bromomethane	--	--		5.6U
Carbon disulfide	2700	--		5.6U
Carbon tetrachloride	600	760		5.6U
Chlorobenzene	1700	1100		5.6U
Chloroethane	1900	--		5.6U
Chloroform	300	370		5.6U
Chloromethane	--	--		5.6U
cis-1,2-Dichloroethene	--	250		5.6U
cis-1,3-Dichloropropene	--	--		5.6U
Dibromochloromethane	--	--		5.6U
Ethylbenzene	5500	1000		1.1U
m+p-xylene	--	--		2.2U
Methylene chloride	100	50		37B
o-Xylene	--	--		1.1U
Styrene	--	--		5.6U
Tetrachloroethene	1400	1300		5.6U
Toluene	1500	700		1.4
trans-1,2-Dichloroethene	300	190		5.6U
trans-1,3-Dichloropropene	--	--		5.6U

Table 1. Summary of Volatile Organic Compounds Detected in Soil Samples
Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	OSB-4 / 02/14/06 / 6 - 8
Trichloroethene	700	470		5.6U
Vinyl chloride	200	20		5.6U
Xylenes (total)	1200	260		1.1U

Notes:

B - Compound was found in the blank and sample
U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
µg/L - µg/L -Micrograms per liter
-- - No NYSDEC RSCOs available

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	OSB-1 11/14/05 10	OSB-1 11/14/05 20	OSB-1 11/14/05 30	OSB-1 11/14/05 40	OSB-1 11/14/05 50
1,1,1-Trichloroethane	5		5 U	5 U	0.65 JH	5 U	5 U
1,1,2,2-Tetrachloroethane	5		5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1		5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5		5 U	5 U	0.77 J	2.6 J	5 U
1,1-Dichloroethene	5		5 U	5 U	1.6 J	3 J	5 U
1,2-Dichloroethane	0.6		5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1		5 U	5 U	5 U	5 U	5 U
2-Butanone	50		10 U	10 U	10 U	10 U	10 U
2-Chloroethyl vinyl ether	--		NS	NS	NS	NS	NS
2-Hexanone	50		10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	--		10 U	10 U	10 U	10 U	10 U
Acetone	50		2.5 J	3.9 J	2.7 J	10 U	1.7 J
Acrolein	5		NS	NS	NS	NS	NS
Acrylonitrile	5		NS	NS	NS	NS	NS
Benzene	1		5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50		5 U	5 U	5 U	5 U	5 U
Bromoform	50		5 U	5 U	5 U	5 U	5 U
Bromomethane	5		5 U	5 U	5 U	5 U	5 U
Carbon disulfide	--		5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5		5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5		5 U	5 U	5 U	5 U	5 U
Chloroethane	5		5 U	5 U	5 U	5 U	5 U
Chloroform	7		5 U	5 U	5 U	5 U	5 U
Chloromethane	--		5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5		5 U	5 U	**17**	**31**	5 U
cis-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	50		5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5		5 U	5 U	5 U	5 U	5 U
m+p-xylene	5		NS	NS	NS	NS	NS

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:**	OSB-1	OSB-1	OSB-1	OSB-1	OSB-1
		Sample Date:	11/14/05	11/14/05	11/14/05	11/14/05	11/14/05
		Sample Depth (ft bls):	10	20	30	40	50
Methylene chloride	5		0.69 JB	0.59 JB	0.71 JB	0.69 JB	0.91 JB
o-Xylene	5		NS	NS	NS	NS	NS
Styrene	5		5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5		5 U	1.2 J	3.7 J	5 U	5 U
Toluene	5		5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5		5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U
Trichloroethene	5		1.4 J	**660 D**	**5500 D**	**710 D**	**14**
Vinyl chloride	2		5 U	5 U	**2.5 J**	1.3 J	5 U
Xylenes (total)	5		5 U	5 U	5 U	5 U	5 U

Notes:

B - Compound was found in the blank and sample
D - Dilution
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water Quality Standards and Guidance Values
µg/L - µg/L -Micrograms per liter
-- - No NYSDEC AWQSGV available
Bold - Concentration exceeds NYSDEC AWQSGVs
NS - Not sampled

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation:	OSB-1	OSB-2	OSB-2	OSB-2	OSB-2
		Sample Date:	11/15/05	11/15/05	11/15/05	11/15/05	11/15/05
		Sample Depth (ft bls):	60	10	20	30	40
1,1,1-Trichloroethane	5		5 U	5 U	5 U	**170 D**	4.5 J
1,1,2,2-Tetrachloroethane	5		5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1		5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5		5 U	5 U	5 U	**23**	**21**
1,1-Dichloroethene	5		5 U	5 U	5 U	**40**	2.4 J
1,2-Dichloroethane	0.6		5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1		5 U	5 U	5 U	5 U	5 U
2-Butanone	50		10 U	10 U	10 U	10 U	10 U
2-Chloroethyl vinyl ether	--		NS	NS	NS	NS	NS
2-Hexanone	50		10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	--		10 U	10 U	10 U	10 U	10 U
Acetone	50		5.1 J	10 U	1.8 J	2.9 J	5.5 J
Acrolein	5		NS	NS	NS	NS	NS
Acrylonitrile	5		NS	NS	NS	NS	NS
Benzene	1		5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50		5 U	5 U	5 U	5 U	5 U
Bromoform	50		5 U	5 U	5 U	5 U	5 U
Bromomethane	5		5 U	5 U	5 U	5 U	5 U
Carbon disulfide	--		5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5		5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5		5 U	5 U	5 U	5 U	5 U
Chloroethane	5		5 U	5 U	5 U	5 U	5 U
Chloroform	7		5 U	5 U	5 U	0.75 J	0.83 J
Chloromethane	--		5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5		5 U	5 U	0.74 J	**99**	3.4 J
cis-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	50		5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5		5 U	5 U	5 U	5 U	5 U
m+p-xylene	5		NS	NS	NS	NS	NS

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:**	OSB-1	OSB-2	OSB-2	OSB-2	OSB-2
		Sample Date:	11/15/05	11/15/05	11/15/05	11/15/05	11/15/05
		Sample Depth (ft bls):	60	10	20	30	40
Methylene chloride	5		0.6 JB	0.85 JB	0.85 JB	0.98 JB	0.97 JB
o-Xylene	5		NS	NS	NS	NS	NS
Styrene	5		5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5		5 U	5 U	3.3 J	**110 D**	1.1 J
Toluene	5		5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5		5 U	5 U	5 U	1.5 J	5 U
trans-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U
Trichloroethene	5		**13**	5 U	**9.5**	**230 D**	**19**
Vinyl chloride	2		5 U	5 U	5 U	5 U	0.94 JM
Xylenes (total)	5		5 U	5 U	5 U	5 U	5 U

Notes:

B - Compound was found in the blank and sample
D - Dilution
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water Quality Standards and Guidance Values
µg/L - µg/L -Micrograms per liter
-- - No NYSDEC AWQSGV available
Bold - Concentration exceeds NYSDEC AWQSGVs
NS - Not sampled

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:**	OSB-2	OSB-2	OSB-3	OSB-3	OSB-3
		Sample Date:	11/15/05	11/16/05	11/16/05	11/16/05	11/16/05
		Sample Depth (ft bls):	50	60	10	20	30
1,1,1-Trichloroethane	5		5 U	5 UM	5 U	5 U	1.4 JH
1,1,2,2-Tetrachloroethane	5		5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1		5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5		5 U	5 UM	5 U	5 U	3.3 J
1,1-Dichloroethene	5		5 U	5 U	5 U	5 U	1.9 J
1,2-Dichloroethane	0.6		5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1		5 U	5 U	5 U	5 U	5 U
2-Butanone	50		10 U	11	10 U	10 U	10 U
2-Chloroethyl vinyl ether	--		NS	NS	NS	NS	NS
2-Hexanone	50		10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	--		10 U	10 U	10 U	10 U	10 U
Acetone	50		10 U	15	1.5 J	10 U	3.2 J
Acrolein	5		NS	NS	NS	NS	NS
Acrylonitrile	5		NS	NS	NS	NS	NS
Benzene	1		5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50		5 U	5 U	5 U	5 U	5 U
Bromoform	50		5 U	5 U	5 U	5 U	5 U
Bromomethane	5		5 U	5 U	5 U	5 U	5 U
Carbon disulfide	--		5 U	5 U	5 UJV	5 UJV	5 UJV
Carbon tetrachloride	5		5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5		5 U	5 U	5 U	5 U	5 U
Chloroethane	5		5 U	5 U	5 U	5 U	5 U
Chloroform	7		5 U	5 U	5 U	5 U	5 U
Chloromethane	--		5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5		5 U	0.71 J	5 U	5 U	**16**
cis-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	50		5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5		5 U	5 U	5 U	5 U	5 U
m+p-xylene	5		NS	NS	NS	NS	NS

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	OSB-2 11/15/05 50	OSB-2 11/16/05 60	OSB-3 11/16/05 10	OSB-3 11/16/05 20	OSB-3 11/16/05 30
Methylene chloride	5		0.89 JB	0.8 JB	5 UV	5 UV	5 UV
o-Xylene	5		NS	NS	NS	NS	NS
Styrene	5		5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5		5 U	1.3 J	5 U	5 U	2.3 J
Toluene	5		5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5		5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U
Trichloroethene	5		5 U	1.5 J	5 U	2.1 J	**290 DJV**
Vinyl chloride	2		5 U	5 U	5 U	5 U	0.88 J
Xylenes (total)	5		5 U	5 U	5 U	5 U	5 U

Notes:

B - Compound was found in the blank and sample
D - Dilution
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water Quality Standards and Guidance Values
µg/L - µg/L -Micrograms per liter
-- - No NYSDEC AWQSGV available
Bold - Concentration exceeds NYSDEC AWQSGVs
NS - Not sampled

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	OSB-3 11/16/05 40	OSB-3 11/16/05 50	OSB-3 11/16/05 60	OSB-4 02/15/06 10	OSB-4 02/15/06 20
1,1,1-Trichloroethane	5		5 UJV	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5		5 UJV	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1		**3.1 JV**	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5		5 UJV	5 U	2.7 J	5 U	5 U
1,1-Dichloroethene	5		1.4 JV	5 U	1.4 J	5 U	5 U
1,2-Dichloroethane	0.6		**110 DJV**	5 U	**3.1 JH**	5 U	5 U
1,2-Dichloropropane	1		5 UJV	5 U	5 U	5 U	5 U
2-Butanone	50		10 UJV	1.3 J	1.5 J	5 U	5 U
2-Chloroethyl vinyl ether	--		NS	NS	NS	5 U	5 U
2-Hexanone	50		10 UJV	10 U	10 U	5 U	5 U
4-Methyl-2-pentanone	--		10 UJV	10 U	10 U	5 U	5 U
Acetone	50		2.8 JV	3.6 J	4.9 J	25 U	25 U
Acrolein	5		NS	NS	NS	25 U	25 U
Acrylonitrile	5		NS	NS	NS	5 U	5 U
Benzene	1		0.45 JHV	5 U	5 U	1 U	1 U
Bromodichloromethane	50		5 UJV	5 U	5 U	5 U	5 U
Bromoform	50		5 UJV	5 U	5 U	5 U	5 U
Bromomethane	5		5 UJV	5 U	5 U	5 U	5 U
Carbon disulfide	--		5 UJV	5 U	5 U	5 U	5 U
Carbon tetrachloride	5		5 UJV	5 U	5 U	5 U	5 U
Chlorobenzene	5		5 UJV	5 U	5 U	5 U	5 U
Chloroethane	5		5 UJV	5 U	5 U	5 U	5 U
Chloroform	7		5 UJV	5 U	5 U	**38**	**36**
Chloromethane	--		5 UJV	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5		**48 JV**	1 J	**7.2**	5 U	5 U
cis-1,3-Dichloropropene	5		5 UJV	5 U	5 U	5 U	5 U
Dibromochloromethane	50		5 UJV	5 U	5 U	5 U	5 U
Ethylbenzene	5		5 UJV	5 U	5 U	1 U	1 U
m+p-xylene	5		NS	NS	NS	2 U	2 U

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	OSB-3 11/16/05 40	OSB-3 11/16/05 50	OSB-3 11/16/05 60	OSB-4 02/15/06 10	OSB-4 02/15/06 20
Methylene chloride	5		5 UJV	0.68 JB	0.67 JB	1.5 J	5 U
o-Xylene	5		NS	NS	NS	1 U	1 U
Styrene	5		5 UJV	5 U	5 U	5 U	5 U
Tetrachloroethene	5		5 UJV	5 U	0.74 J	5 U	5 U
Toluene	5		5 UJV	5 U	5 U	4	**7.4**
trans-1,2-Dichloroethene	5		0.76 JV	5 U	0.53 J	5 U	5 U
trans-1,3-Dichloropropene	5		5 UJV	5 U	5 U	5 U	5 U
Trichloroethene	5		**630 DJV**	**34**	**410 D**	5 U	5 U
Vinyl chloride	2		1.5 JV	5 U	5 U	5 U	5 U
Xylenes (total)	5		5 UJV	5 U	5 U	NS	NS

Notes:

B - Compound was found in the blank and sample
D - Dilution
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water Quality Standards and Guidance Values
µg/L - µg/L -Micrograms per liter
-- - No NYSDEC AWQSGV available
Bold - Concentration exceeds NYSDEC AWQSGVs
NS - Not sampled

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: / Sample Date: / Sample Depth (ft bls):	OSB-4 02/15/06 30	OSB-4 02/14/06 40	OSB-4 02/14/06 50	OSB-4 02/14/06 60	OSB-4 02/14/06 70	OSB-5 02/16/06 10
1,1,1-Trichloroethane	5		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5		5 U	5 U	1.3 J	5 U	5 U	5 U
1,2-Dichloroethane	0.6		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	50		5 U	5 U	5 U	5 U	23	5 U
2-Chloroethyl vinyl ether	--		5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	--		5 U	5 U	5 U	5 U	5 U	5 U
Acetone	50		25 U	25 U	25 U	25 U	25 U	25 U
Acrolein	5		25 U	25 U	25 U	25 U	25 U	25 U
Acrylonitrile	5		5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1		1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	50		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	50		5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5		5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	--		5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5		5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5		5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	7		5.5	5 U	5 U	5 U	5 U	5 U
Chloromethane	--		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5		5 U	5 U	23	5 U	5 U	5 U
cis-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	50		5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5		1 U	1 U	1 U	1 U	1 U	1 U
m+p-xylene	5		2 U	2 U	2 U	2 U	2 U	2 U

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: / Sample Date: / Sample Depth (ft bls):	OSB-4 02/15/06 30	OSB-4 02/14/06 40	OSB-4 02/14/06 50	OSB-4 02/14/06 60	OSB-4 02/14/06 70	OSB-5 02/16/06 10
Methylene chloride	5		2.3 JB	3.2 J	5 U	1.4 JB	4.1 JB	5 U
o-Xylene	5		1 U	1 U	1 U	1 U	1 U	1 U
Styrene	5		5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5		5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5		**8.7**	**7.2**	**6.1**	**11**	**9.1**	3.3
trans-1,2-Dichloroethene	5		5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5		**11**	**17**	**240**	5 U	5 U	1.4 J
Vinyl chloride	2		5 U	5 U	**9.6**	5 U	5 U	5 U
Xylenes (total)	5		NS	NS	NS	NS	NS	NS

Notes:

B - Compound was found in the blank and sample
D - Dilution
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water Quality Standards and Guidance Values
µg/L - µg/L -Micrograms per liter
-- - No NYSDEC AWQSGV available
Bold - Concentration exceeds NYSDEC AWQSGVs
NS - Not sampled

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:**	OSB-5	OSB-5	OSB-5	OSB-5	OSB-5	OSB-6
		Sample Date:	02/16/06	02/16/06	02/16/06	02/16/06	02/16/06	02/14/06
		Sample Depth (ft bls):	20	30	40	50	60	15
1,1,1-Trichloroethane	5		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5		5 U	5 U	**14**	5 U	5 U	5 U
1,1-Dichloroethene	5		5 U	5 U	2.3 J	5 U	5 U	5 U
1,2-Dichloroethane	0.6		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	50		5 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethyl vinyl ether	--		5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	--		5 U	5 U	5 U	5 U	5 U	5 U
Acetone	50		25 U	25 U	25 U	25 U	25 U	25 U
Acrolein	5		25 U	25 U	25 U	25 U	25 U	25 U
Acrylonitrile	5		5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1		1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	50		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	50		5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5		5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	--		5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5		5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5		5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	7		5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	--		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5		5 U	4.2 J	**9.2**	5 U	5 U	5 U
cis-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	50		5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5		1 U	1 U	1 U	1 U	1 U	1 U
m+p-xylene	5		2 U	2 U	2 U	2 U	2 U	2 U

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	OSB-5 02/16/06 20	OSB-5 02/16/06 30	OSB-5 02/16/06 40	OSB-5 02/16/06 50	OSB-5 02/16/06 60	OSB-6 02/14/06 15
Methylene chloride	5		1.8 J	1.5 J	1.8 J	2.3 J	3.9 JB	1 J
o-Xylene	5		1 U	1 U	1 U	1 U	1 U	1 U
Styrene	5		5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5		5 U	5 U	2.5 J	5 U	5 U	5 U
Toluene	5		1 U	1 U	**7.9**	1 U	1 U	**7.9**
trans-1,2-Dichloroethene	5		5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5		3.3 J	**91**	**210**	5 U	5 U	**8.5**
Vinyl chloride	2		5 U	5 U	2 J	5 U	5 U	5 U
Xylenes (total)	5		NS	NS	NS	NS	NS	NS

Notes:

B - Compound was found in the blank and sample
D - Dilution
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water Quality Standards and Guidance Values
µg/L - µg/L -Micrograms per liter
-- - No NYSDEC AWQSGV available
Bold - Concentration exceeds NYSDEC AWQSGVs
NS - Not sampled

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	OSB-6 02/14/06 25	OSB-6 02/14/06 35	OSB-6 02/14/06 45	OSB-6 02/14/06 55	OSB-6 02/14/06 65	OSB-6 02/14/06 75
1,1,1-Trichloroethane	5		5 U	25 U	100 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5		5 U	25 U	100 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1		5 U	25 U	100 U	5 U	5 U	5 U
1,1-Dichloroethane	5		5 U	25 U	100 U	5 U	5 U	5 U
1,1-Dichloroethene	5		5 U	25 U	100 U	5 U	5 U	5 U
1,2-Dichloroethane	0.6		5 U	25 U	100 U	5 U	5 U	5 U
1,2-Dichloropropane	1		5 U	25 U	100 U	5 U	5 U	5 U
2-Butanone	50		5 U	25 U	100 U	5 U	5 U	5 U
2-Chloroethyl vinyl ether	--		5 U	25 U	100 U	5 U	5 U	5 U
2-Hexanone	50		5 U	25 U	100 U	5 U	5 U	5 U
4-Methyl-2-pentanone	--		5 U	25 U	100 U	5 U	5 U	5 U
Acetone	50		25 U	120 U	500 U	25 U	25 U	25 U
Acrolein	5		25 U	120 U	500 U	25 U	25 U	25 U
Acrylonitrile	5		5 U	25 U	100 U	5 U	5 U	5 U
Benzene	1		1 U	5 U	20 U	1 U	1 U	1 U
Bromodichloromethane	50		5 U	25 U	100 U	5 U	5 U	5 U
Bromoform	50		5 U	25 U	100 U	5 U	5 U	5 U
Bromomethane	5		5 U	25 U	100 U	5 U	5 U	5 U
Carbon disulfide	--		5 U	25 U	100 U	5 U	5 U	5 U
Carbon tetrachloride	5		5 U	25 U	100 U	5 U	5 U	5 U
Chlorobenzene	5		5 U	25 U	100 U	5 U	5 U	5 U
Chloroethane	5		5 U	25 U	100 U	5 U	5 U	5 U
Chloroform	7		5 U	25 U	100 U	5 U	5 U	5 U
Chloromethane	--		5 U	25 U	100 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5		5 U	**12 J**	**47 J**	5 U	5 U	5 U
cis-1,3-Dichloropropene	5		5 U	25 U	100 U	5 U	5 U	5 U
Dibromochloromethane	50		5 U	25 U	100 U	5 U	5 U	5 U
Ethylbenzene	5		1 U	5 U	20 U	1 U	1 U	1 U
m+p-xylene	5		2 U	10 U	40 U	2 U	2 U	2 U

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	OSB-6 02/14/06 25	OSB-6 02/14/06 35	OSB-6 02/14/06 45	OSB-6 02/14/06 55	OSB-6 02/14/06 65	OSB-6 02/14/06 75
Methylene chloride	5		1.3 JB	25 U	100 U	5 U	1.8 JB	1.7 JB
o-Xylene	5		1 U	5 U	20 U	1 U	1 U	1 U
Styrene	5		5 U	25 U	100 U	5 U	5 U	5 U
Tetrachloroethene	5		5 U	25 U	100 U	5 U	5 U	5 U
Toluene	5		**11**	**10**	20 U	**7.5**	**6.3**	**8**
trans-1,2-Dichloroethene	5		5 U	25 U	100 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5		5 U	25 U	100 U	5 U	5 U	5 U
Trichloroethene	5		**38**	**700**	**2400**	5 U	5 U	5 U
Vinyl chloride	2		5 U	25 U	100 U	5 U	5 U	5 U
Xylenes (total)	5		NS	NS	NS	NS	NS	NS

Notes:

B - Compound was found in the blank and sample
D - Dilution
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water Quality Standards and Guidance Values
µg/L - µg/L -Micrograms per liter
-- - No NYSDEC AWQSGV available
Bold - Concentration exceeds NYSDEC AWQSGVs
NS - Not sampled

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date: Sample Depth (ft bls):	TB 02/13/06
1,1,1-Trichloroethane	5		5 U
1,1,2,2-Tetrachloroethane	5		5 U
1,1,2-Trichloroethane	1		5 U
1,1-Dichloroethane	5		5 U
1,1-Dichloroethene	5		5 U
1,2-Dichloroethane	0.6		5 U
1,2-Dichloropropane	1		5 U
2-Butanone	50		5 U
2-Chloroethyl vinyl ether	--		5 U
2-Hexanone	50		5 U
4-Methyl-2-pentanone	--		5 U
Acetone	50		25 U
Acrolein	5		25 U
Acrylonitrile	5		5 U
Benzene	1		1 U
Bromodichloromethane	50		5 U
Bromoform	50		5 U
Bromomethane	5		5 U
Carbon disulfide	--		5 U
Carbon tetrachloride	5		5 U
Chlorobenzene	5		5 U
Chloroethane	5		5 U
Chloroform	7		5 U
Chloromethane	--		5 U
cis-1,2-Dichloroethene	5		5 U
cis-1,3-Dichloropropene	5		5 U
Dibromochloromethane	50		5 U
Ethylbenzene	5		1 U
m+p-xylene	5		2 U

Table 2. Summary of Volatile Organic Compounds Detected in Groundwater Samples, Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	TB 02/13/06
Methylene chloride	5		2.4 JB
o-Xylene	5		1 U
Styrene	5		5 U
Tetrachloroethene	5		5 U
Toluene	5		1 U
trans-1,2-Dichloroethene	5		5 U
trans-1,3-Dichloropropene	5		5 U
Trichloroethene	5		5 U
Vinyl chloride	2		5 U
Xylenes (total)	5		NS

Notes:

B - Compound was found in the blank and sample
D - Dilution
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water Quality Standards and Guidance Values
µg/L - µg/L -Micrograms per liter
-- - No NYSDEC AWQSGV available
Bold - Concentration exceeds NYSDEC AWQSGVs
NS - Not sampled

Table 3. Summary of Volatile Organic Compounds Detected in Soil Gas Samples
Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/m³)	**Sample Designation:** / **Sample Date:**	SG-1 02/16/06	SG-1 DUP 02/16/06	SG-2 02/16/06	SG-3 02/16/06	SG-4 02/15/06	SG-5 02/15/06	SG-6 02/15/06
1,1,1-Trichloroethane		0.16 U	0.16 U	1.8	0.16 U	0.16 U	0.16 U	0.87 U
1,1,2,2-Tetrachloroethane		1.1 U	1.1 U	0.16 U	1.1 U	0.16 U	0.16 U	1.1 U
1,1,2-Trichloroethane		0.87 U	0.87 U	0.16 U	0.87 U	0.16 U	0.16 U	0.87 U
1,1-Dichloroethane		0.16 U	0.16 U	0.65 U	0.16 U	0.16 U	0.16 U	0.65 U
1,1-Dichloroethene		0.16 U	0.63 U	0.63 U	0.16 U	0.16 U	0.16 U	0.63 U
1,2,4-Trichlorobenzene		3 U	3 U	0.4 U	3 U	0.4 U	0.4 U	3 U
1,2,4-Trimethylbenzene		2.6	2.3	0.54	3	0.16 U	0.47	0.79 U
1,2-Dibromoethane		1.2 U	1.2 U	0.16 U	1.2 U	0.16 U	0.16 U	1.2 U
1,2-Dichlorobenzene		0.96 U	0.96 U	0.16 U	0.96 U	0.16 U	0.16 U	0.96 U
1,2-Dichloroethane		0.65 U	0.65 U	0.65 U	0.16 U	0.16 U	0.16 U	0.65 U
1,2-Dichloroethene (total)		0.16 U	0.16 U	0.63 U	0.16 U	0.16 U	0.16 U	0.63 U
1,2-Dichloropropane		0.74 U	0.74 U	0.16 U	0.74 U	0.16 U	0.16 U	0.74 U
1,3,5-Trimethylbenzene		0.88	0.84	0.2	1.1	0.16 U	0.16 U	0.79 U
1,3-Butadiene		1.9	0.69	5.1	6.7	0.92	1.4	11
1,3-Dichlorobenzene		0.96 U	0.96 U	0.16 U	0.96 U	0.16 U	0.16 U	0.96 U
1,4-Dichlorobenzene		0.96 U	0.96 U	0.16 U	0.96 U	0.16 U	0.16 U	0.96 U
1,4-Dioxane		14 U	14 U	4 U	14 U	4 U	4 U	14 U
2-Butanone		1.6	1.2	12	19	1.1	6	32
2-Chlorotoluene		0.83 U	0.83 U	0.16 U	0.83 U	0.16 U	0.16 U	0.83 U
2-Hexanone		1.6 U	1.6 U	0.4 U	8.6	0.4 U	1.7	1.6 U
2-Propanol		4 U	4 U	9.8 U	5.8	4 U	21	9.8 U
3-Chloropropene		0.4 U	0.4 U	1.3 U	0.4 U	0.4 U	0.4 U	4.1
4-Ethyltoluene		2.2	2.1	0.49	3	0.16 U	0.52	0.79 U
4-Methyl-2-pentanone		1.6 U	1.6 U	0.4 U	6.1	0.4 U	1.1	1.6 U
Acetone		38 D	41 D	49 D	340 D	8.6	170 D	240 D
Benzene		0.42	0.32	2.1	1.7	0.71	1.2	3.8
Bromodichloromethane		1.1 U	1.1 U	0.16 U	1.1 U	0.16 U	0.16 U	1.1 U
Bromoethene		0.16 U	0.7 U	0.7 U	0.16 U	0.16 U	0.16 U	0.7 U
Bromoform		1.7 U	1.7 U	0.16 U	1.7 U	0.16 U	0.16 U	1.7 U
Bromomethane		0.16 U	0.62 U	0.62 U	0.16 U	0.16 U	0.16 U	0.62 U
Carbon Disulfide		0.94	0.44	3.4	0.8	0.49	0.56	8.7
Carbon tetrachloride		0.16 U	0.16 U	88	0.16 U	0.16 U	0.16 U	1 U
Chlorobenzene		0.74 U	0.74 U	0.16 U	0.74 U	0.16 U	0.16 U	0.74 U

Table 3. Summary of Volatile Organic Compounds Detected in Soil Gas Samples
Tom's Point Property, Manorhaven, New York

Parameter (Concentrations in µg/m³)	Sample Designation: / Sample Date:	SG-1 02/16/06	SG-1 DUP 02/16/06	SG-2 02/16/06	SG-3 02/16/06	SG-4 02/15/06	SG-5 02/15/06	SG-6 02/15/06
Chloroethane		0.4 U	1.1 U	1.1 U	0.4 U	0.4 U	0.4 U	1.1 U
Chloroform		0.16 U	0.16 U	7.3	0.16 U	0.16 U	0.16 U	0.78 U
Chloromethane		0.4 U	0.4 U	0.83 U	0.79	0.66	0.79	0.83 U
cis-1,2-Dichloroethene		0.16 U	0.16 U	0.63 U	0.16 U	0.16 U	0.16 U	0.63 U
cis-1,3-Dichloropropene		0.73 U	0.73 U	0.16 U	0.73 U	0.16 U	0.73 U	0.73 U
Cyclohexane		0.19	0.19	0.3	1.3	0.31	1.5	0.96
Dibromochloromethane		1.4 U	1.4 U	0.16 U	1.4 U	0.16 U	0.16 U	1.4 U
Dichlorodifluoromethane		3.6	0.58	3.9	0.58	0.62	0.68	2 U
Ethylbenzene		2.1	2.2	0.74	6.5	0.21	1.3	0.96
Freon 113		0.16 U	1.2 U	1.2 U	0.16 U	0.16 U	0.16 U	1.2 U
Freon 114		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	1.1 U
Heptane		1.6	1	1.5	18	0.39	2	0.16 U
Hexachlorobutadiene		1.7 U	1.7 U	1.7 U	0.16 U	1.7 U	0.16 U	1.7 U
Hexane		0.44	0.4 U	1.5	3.2	0.6	1.4	1.4 U
Isooctane		0.92	2.2	4.3	1.2	0.21	1.4	2.4
m+p-xylene		7.8	7.4	2.7	18	0.53	4	2.6
Methylene chloride		0.4 U	0.4 U	1.4 U	2.2	0.4 U	0.4 U	1.4 U
MTBE		0.4 U	0.4 U	1.4 U	0.4 U	0.4 U	1.1	1.4 U
o-Xylene		4.1	4	1.3	9.6	0.23	1.9	1.2
Styrene		1.8	1.9	0.57	5.1	0.16 U	0.87	0.68 U
t-Butyl Alcohol		4 U	4 U	12 U	6.9	4 U	5.7	12 U
Tetrachloroethene		41	45	1.9	12	0.25	2.1	3.9
Tetrahydrofuran		4 U	4 U	12 U	4 U	4 U	4 U	12 U
Toluene		4.9	4.9	2.2	57	1.4	8.9	2.5
trans-1,2-Dichloroethene		0.16 U	0.16 U	0.63 U	0.16 U	0.16 U	0.16 U	0.63 U
trans-1,3-Dichloropropene		0.73 U	0.73 U	0.16 U	0.73 U	0.16 U	0.16 U	0.73 U
Trichloroethene		1.7	1.5	0.16 U	1.1	0.16 U	0.16 U	0.86 U
Trichlorofluoromethane		0.27	0.25	4.3	0.26	0.27	0.28	0.9 U
Vinyl chloride		0.16 U	0.16 U	0.41 U	0.16 U	0.16 U	0.16 U	0.41 U
Xylenes (total)		12	12	4	28	0.77	6	3.9

Notes:

D - Dilution

U - Compound was analyzed for but not detected

µg/m³ - Micrograms per cubic meter

DUP - Duplicate

Table 4. Summary of Volatile Organic Compounds Detected in Sub-Slab Soil Vapor Samples, Toms Point Property, Manorhaven, New York

Parameter	Sample Designation:	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8
(Concentrations in μg/m^3)	Sample Date:	08/24/06	08/24/06	08/24/06	08/24/06	08/24/06	08/24/06	08/24/06	08/24/06
1,1,1-Trichloroethane		6.5 U	6.5 U	8.7 U	5.5 U	6.5 U	6.5 U	5.5 U	6.5 U
1,1,2,2-Tetrachloroethane		8.2 U	8.2 U	11 U	6.9 U	8.2 U	8.2 U	6.9 U	8.2 U
1,1,2-Trichloroethane		6.5 U	6.5 U	8.7 U	5.5 U	6.5 U	6.5 U	5.5 U	6.5 U
1,1-Dichloroethane		4.9 U	4.9 U	6.5 U	4 U	4.9 U	4.9 U	4 U	4.9 U
1,1-Dichloroethene		4.8 U	4.8 U	6.3 U	4 U	4.8 U	4.8 U	4 U	4.8 U
1,2-Dibromoethane		9.2 U	9.2 U	12 U	7.7 U	9.2 U	9.2 U	7.7 U	9.2 U
1,2-Dichloroethane		4.9 U	4.9 U	6.5 U	4 U	4.9 U	4.9 U	4 U	4.9 U
1,2-Dichloroethene (total)		4.8 U	4.8 U	6.3 U	4 U	4.8 U	4.8 U	4 U	4.8 U
1,2-Dichloropropane		5.5 U	5.5 U	7.4 U	4.6 U	5.5 U	5.5 U	4.6 U	5.5 U
1,3,5-Trimethylbenzene		5.9 U	5.9 U	7.9 U	4.9 U	5.9 U	5.9 U	4.9 U	5.9 U
1,3-Butadiene		6.6 U	6.6 U	8.8 U	5.5 U	6.6 U	6.6 U	5.5 U	6.6 U
3-Chloropropene		9.4 U	9.4 U	13 U	7.8 U	9.4 U	9.4 U	7.8 U	9.4 U
4-Ethyltoluene		6.4	6.9	7.9 U	6.4	5.9 U	5.9 U	6.9	6.4
Benzene		3.8 U	3.8 U	5.1 U	3.2 U	3.8 U	3.8 U	3.2 U	3.8 U
Bromodichloromethane		8 U	8 U	11 U	6.7 U	8 U	8 U	6.7 U	8 U
Bromoethene		5.2 U	5.2 U	7 U	4.4 U	5.2 U	5.2 U	4.4 U	5.2 U
Bromoform		12 U	12 U	17 U	10 U	12 U	12 U	10 U	12 U
Bromomethane		4.7 U	4.7 U	6.2 U	3.9 U	4.7 U	4.7 U	3.9 U	4.7 U
Carbon tetrachloride		7.5 U	7.5 U	10 U	6.3 U	7.5 U	7.5 U	6.3 U	7.5 U
Chloroethane		3.2 U	3.2 U	4.2 U	2.6 U	3.2 U	3.2 U	2.6 U	3.2 U
Chloroform		5.9 U	5.9 U	7.8 U	4.9 U	5.9 U	5.9 U	4.9 U	5.9 U
cis-1,2-Dichloroethene		4.8 U	4.8 U	6.3 U	4 U	4.8 U	4.8 U	4 U	4.8 U
cis-1,3-Dichloropropene		5.4 U	5.4 U	7.3 U	4.5 U	5.4 U	5.4 U	4.5 U	5.4 U
Cyclohexane		9.3	10	11	8.3	7.2	9.6	9.6	14
Dibromochloromethane		10 U	10 U	14 U	8.5 U	10 U	10 U	8.5 U	10 U
Dichlorodifluoromethane		15 U	15 U	20 U	12 U	15 U	15 U	12 U	15 U
Ethylbenzene		17	19	21	17	13	14	18	18
Freon 114		8.4 U	8.4 U	11 U	7 U	8.4 U	8.4 U	7 U	8.4 U
Heptane		4.9 U	8.2	6.6 U	4.5	4.9 U	4.9 U	5.3	8.6
Hexane		490	420	630	330	490	670	630	630
Isooctane		5.6 U	5.6 U	7.5 U	4.7 U	5.6 U	5.6 U	4.7 U	5.6 U
MTBE		11 U	11 U	14 U	9 U	11 U	11 U	9 U	11 U
Tetrachloroethene		18	12	11 U	6.8 U	8.1 U	8.1 U	7.5	16
Toluene		26	34	33	25	20	26	27	34
trans-1,2-Dichloroethene		4.8 U	4.8 U	6.3 U	4 U	4.8 U	4.8 U	4 U	4.8 U
trans-1,3-Dichloropropene		5.4 U	5.4 U	7.3 U	4.5 U	5.4 U	5.4 U	4.5 U	5.4 U
Trichloroethene		6.4 U	6.4 U	8.6 U	5.4 U	6.4 U	6.4 U	5.4 U	18
Trichlorofluoromethane		6.7 U	6.7 U	9 U	5.6 U	6.7 U	6.7 U	5.6 U	6.7 U
Vinyl chloride		3.1 U	3.1 U	4.1 U	2.6 U	3.1 U	3.1 U	2.6 U	3.1 U
Xylenes (total)		87	96	110	87	69	74	96	96

Notes:

U - Compound was analyzed for but not detected
μg/m^3 - Micrograms per cubic meter
JV - Estimated value based upon data validation
N - Analysis indicates presence of analyte for which there is presumptive evidence to make a "tentative identification"

Table 5. Summary of Volatile Organic Compounds Detected in Indoor and Outdoor Ambient Air Samples, Toms Point Property, Manorhaven, New York

Parameter	**Sample Designation:**	AMB-1	IA-1	IA-2	IA-3	IA-4	IA-5	IA-6	IA-7	IA-8
(Concentrations in µg/m^3)	**Sample Date:**	08/24/06	08/24/06	08/24/06	08/24/06	08/24/06	08/24/06	08/24/06	08/24/06	08/24/06
1,1,1-Trichloroethane		2.2 U	1.3	0.55 U JV	0.22 U	0.23	0.19	0.24	0.51	0.16 JV
1,1,2,2-Tetrachloroethane		2.7 U	0.21 U	0.69 U JV	0.27 U	0.27 U	0.21 U	0.27 U	0.069 U	0.14 U JV
1,1,2-Trichloroethane		2.2 U	0.16 U	0.55 U JV	0.22 U	0.22 U	0.16 U	0.22 U	0.055 U	0.11 U JV
1,1-Dichloroethane		1.6 U	0.12 U	0.4 U JV	0.16 U	0.16 U	0.12 U	0.16 U	0.04 U	0.081 U JV
1,1-Dichloroethene		1.6 U	0.12 U	0.4 U JV	0.16 U	0.16 U	0.12 U	0.16 U	0.04 U	0.079 U JV
1,2-Dibromoethane		3.1 U	0.23 U	0.77 U JV	0.31 U	0.31 U	0.23 U	0.31 U	0.077 U	0.15 U JV
1,2-Dichloroethane		1.6 U	0.77	0.81 U JV	0.32 U	0.32 U	0.24 U	0.32 U	0.081 U	0.16 U JV
1,2-Dichloroethene (total)		1.6 U	0.12 U	0.4 U JV	0.16 U	0.16 U	0.12 U	0.16 U	0.04 U	0.079 U JV
1,2-Dichloropropane		1.8 U	0.28 U	0.92 U JV	0.37 U	0.37 U	0.28 U	0.37 U	0.092 U	0.18 U JV
1,3,5-Trimethylbenzene		2 U	0.46	2.9 JV	1.4	0.41	0.39	0.25	0.22	0.19 JV
1,3-Butadiene		2.2 U	0.33 U	1.1 U JV	0.55	0.44 U	0.33 U	1.7	0.12	0.22 U JV
3-Chloropropene		3.1 U JV	0.19 U JV	0.63 U JV	0.25 U JV	0.25 U JV	0.19 U JV	0.25 U JV	0.063 U JV	0.13 U JV
4-Ethyltoluene		3	1.3	7.4 N JV	3.7	1.2	1	0.69	0.59	0.54 JV
Benzene		1.6	1.9	3.8 JV	1.7	3	1.5	11	0.99	1.2 JV
Bromodichloromethane		2.7 U	0.2 U	0.67 U JV	0.27 U	0.27 U	0.2 U	0.27 U	0.067 U	0.13 U JV
Bromoethene		1.7 U	0.26 U	0.87 U JV	0.35 U	0.35 U	0.26 U	0.35 U	0.087 U	0.17 U JV
Bromoform		4.1 U	0.31 U	1 U JV	0.41 U	0.41 U	0.31 U	0.41 U	0.1 U	0.21 U JV
Bromomethane		1.6 U	0.58 U	1.9 U JV	0.78 U	0.78 U	0.58 U	0.78 U	0.19 U	0.39 U JV
Carbon tetrachloride		2.5 U	1.1	1.1 JV	1	1	0.94	1	0.88	1 JV
Chloroethane		1.1 U	0.4 U	1.3 U JV	0.53 U	0.53 U	0.4 U	0.53 U	0.13 U	0.26 U JV
Chloroform		2 U	0.43 N JV	1.3 JV	0.41	0.2 U	0.38	0.36	0.34	0.39 JV
cis-1,2-Dichloroethene		1.6 U	0.12 U	0.4 U JV	0.16 U	0.16 U	0.12 U	0.16 U	0.04 U	0.079 U JV
cis-1,3-Dichloropropene		1.8 U	0.14 U	0.45 U JV	0.18 U	0.18 U	0.14 U	0.18 U	0.045 U	0.091 U JV
Cyclohexane		1.4 U	5.2	3 JV	1.4	2.4	0.86	0.86	0.41	0.79 JV
Dibromochloromethane		3.4 U	0.26 U	0.85 U JV	0.34 U	0.34 U	0.26 U	0.34 U	0.085 U	0.17 U JV
Dichlorodifluoromethane		4.9 U	4.6	5.4 JV	4.9	4.5	4.7	4.6	4.7	4.9 JV
Ethylbenzene		61	1.6	6.5 JV	2.4	2.4	1.4	0.87	0.74	0.69 JV
Freon 114		2.8 U	0.21 U	0.7 U JV	0.28 U	0.28 U	0.21 U	0.28 U	0.2	0.2 JV
Heptane		2.3 JV	1.3 JV	9.8 JV	1.3 JV	2.3 JV	0.98 JV	0.9 JV	0.53 JV	0.82 JV
Hexane		4.6 JV	4.6 JV	6 JV	2.2 JV	4.2 JV	1.7 JV	1.7 JV	0.81 JV	3.9 JV
Isooctane		2.2	1.1	2.3 JV	0.93	1.4	0.84	0.7	0.61	0.56 JV
MTBE		3.6 U	0.2	0.36 JV	0.15	0.16	0.15	0.14 U	0.094	0.087 JV
Tetrachloroethene		2.7 U	2.3	16 JV	1.8	1.8	2.6	3.1	0.81	2.2 JV
Toluene		23	10	29 JV	9	11	6	6.8	3.7	4.1 JV
trans-1,2-Dichloroethene		1.6 U	0.12 U	0.4 U JV	0.16 U	0.16 U	0.12 U	0.16 U	0.04 U	0.079 U JV
trans-1,3-Dichloropropene		1.8 U	0.14 U	0.45 U JV	0.18 U	0.18 U	0.14 U	0.18 U	0.045 U	0.091 U JV
Trichloroethene		2.1 U	0.32	0.54 U JV	0.97	0.38	0.19	0.7	0.21	0.11 U JV
Trichlorofluoromethane		2.2 U	2.4	3 JV	2.6	2.3	2.5	2.3	2.1	4.4 JV
Vinyl chloride		1 U	0.15 U	0.51 U JV	0.2 U	0.2 U	0.15 U	0.2 U	0.051 U	0.1 U JV
Xylenes (total)		280	5.6	32 JV	10	9.1	5.2	3	2.8	2.9 JV

Notes:

µg/m^3 - Micrograms per cubic meter
U - Compound was analyzed for but not detected
JV - Estimated value based upon data validation
N - Analysis indicates presence of analyte for which there is presumptive evidence to make a "tentative identification"

Table 6. Summary of Volatile Organic Compounds Detected in Intertidal Sediment Samples, MBA-Manorhaven, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	Sample Designation: / Sample Date: / Sample Depth (ft bls):	IS-1 / 7/27/2011 / 0-2	IS-2 / 7/27/2011 / 0-2	FB-072711 / 7/27/2011 / -	TRIP BLANK / 7/27/2011 / -
1,1,1-Trichloroethane	680		6.6 U	6.2 U	5 U	5 U
1,1,2,2-Tetrachloroethane	--		6.6 U	6.2 U	5 U	5 U
1,1,2-Trichloroethane	--		6.6 U	6.2 U	5 U	5 U
1,1-Dichloroethane	270		6.6 U	6.2 U	5 U	5 U
1,1-Dichloroethene	330		6.6 U	6.2 U	5 U	5 U
1,2,4-Trichlorobenzene	--		6.6 U	6.2 U	5 U	5 U
1,2-Dibromoethane	--		6.6 U	6.2 U	5 U	5 U
1,2-Dichlorobenzene	1100		6.6 U	6.2 U	5 U	5 U
1,2-Dichloroethane	20		6.6 U	6.2 U	5 U	5 U
1,2-Dichloropropane	--		6.6 U	6.2 U	5 U	5 U
1,3-Dichlorobenzene	2400		6.6 U	6.2 U	5 U	5 U
1,4-Dichlorobenzene	1800		6.6 U	6.2 U	5 U	5 U
2-Butanone (MEK)	120		13 U	12 U	10 U	10 U
2-Hexanone	--		13 U	12 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	--		6.6 U	6.2 U	10 U	10 U
Acetone	50		26 U	3.5 J B	10 U	10 U
Benzene	60		6.6 U	6.2 U	5 U	5 U
Bromodichloromethane	--		6.6 U	6.2 U	5 U	5 U
Bromoform	--		6.6 U	6.2 U	5 U	5 U
Bromomethane	--		6.6 U	6.2 U	5 U *	5 U *
Carbon disulfide	--		6.6 U	6.2 U	5 U	5 U
Carbon tetrachloride	760		6.6 U	6.2 U	5 U	5 U
Chlorobenzene	1100		6.6 U	6.2 U	5 U	5 U
Chloroethane	--		6.6 U	6.2 U	5 U	5 U
Chloroform	370		6.6 U	6.2 U	5 U	5 U
Chloromethane	--		6.6 U	6.2 U	5 U	5 U
cis-1,2-Dichloroethene	250		6.6 U	6.2 U	5 U	5 U
cis-1,3-Dichloropropene	--		6.6 U	6.2 U	5 U	5 U
Cyclohexane	--		6.6 U *	6.2 U *	5 U	5 U
Dibromochloromethane	--		6.6 U	6.2 U	5 U	5 U
Dibromochloropropane	--		13 U	12 U	5 U	5 U

Table 6. Summary of Volatile Organic Compounds Detected in Intertidal Sediment Samples, MBA-Manorhaven, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	Sample Designation: / Sample Date: / Sample Depth (ft bls):	IS-1	IS-2	FB-072711	TRIP BLANK
		Sample Date:	7/27/2011	7/27/2011	7/27/2011	7/27/2011
		Sample Depth (ft bls):	0-2	0-2	-	-
Dichlorodifluoromethane	--		6.6 U *	6.2 U *	5 U	5 U
Ethylbenzene	1000		6.6 U	6.2 U	5 U	5 U
Freon 113	--		6.6 U	6.2 U	5 U	5 U
Isopropylbenzene	--		6.6 U	6.2 U	5 U	5 U
Methyl acetate	--		6.6 U *	6.2 U *	5 U	5 U
Methylcyclohexane	--		6.6 U	6.2 U	5 U	5 U
Methylene chloride	50		7.4 J B	6.9 J B	1.6 J B	3.8 J B
MTBE	930		6.6 U	6.2 U	5 U	5 U
Styrene	--		6.6 U	6.2 U	5 U	5 U
Tetrachloroethene	1300		6.6 U	6.2 U	5 U	5 U
Toluene	700		6.6 U	6.2 U	5 U	5 U
trans-1,2-Dichloroethene	190		6.6 U	6.2 U	5 U	5 U
trans-1,3-Dichloropropene	--		6.6 U	6.2 U	5 U	5 U
Trichloroethene	470		6.6 U	6.2 U	5 U	5 U
Trichlorofluoromethane	--		6.6 U	6.2 U	5 U	5 U
Vinyl chloride	20		6.6 U	6.2 U	5 U	5 U
Xylenes (total)	260		6.6 U	6.2 U	5 U	5 U

Notes:

J - Estimated value
B - The analyte was found in an associated laboratory trip blank, as well as in the sample.
* - Laboratory Control Sample or Laboratory Control Sample Dupilcate (LCS or LCSD) exceeds the control limits
U - Indicates that the compound was analyzed for but not detected at concentration shown
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No NYSDEC Part 375 Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

Table 7. Summary of Semivolatile Organic Compounds Detected in Intertidal Sediment Samples
MBA-Manorhaven, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	Sample Designation: / Sample Date: / Sample Depth (ft bls):	IS-1 / 7/27/2011 / 0-2	IS-2 / 7/27/2011 / 0-2	FB-072711 / 7/27/2011 / -
1,1'-Biphenyl	--		360 U	340 U	4.2 U
2,2'-oxybis (1-chloropropane)	--		360 U	340 U	4.2 U
2,4,5-Trichlorophenol	--		2200 U	2100 U	11 U
2,4,6-Trichlorophenol	--		360 U	340 U	4.2 U
2,4-Dichlorophenol	--		360 U	340 U	4.2 U
2,4-Dimethylphenol	--		360 U	340 U	4.2 U
2,4-Dinitrophenol	--		2200 U	2100 U	26 U
2,4-Dinitrotoluene	--		360 U	340 U	4.2 U
2,6-Dinitrotoluene	--		360 U	340 U	4.2 U
2-Chloronaphthalene	--		360 U	340 U	4.2 U
2-Chlorophenol	--		360 U	340 U	4.2 U
2-Methylnaphthalene	--		360 U	340 U	4.2 U
2-Methylphenol	330		360 U	340 U	4.2 U
2-Nitroaniline	--		880 U	830 U	4.2 U
2-Nitrophenol	--		360 U	340 U	4.2 U
3,3'-Dichlorobenzidine	--		430 U	410 U	4.2 U
3-Nitroaniline	--		880 U	830 U	4.2 U
4,6-Dinitro-2-methylphenol	--		2200 U	2100 U	26 U
4-Bromophenyl phenyl ether	--		360 U	340 U	4.2 U
4-Chloro-3-methylphenol	--		360 U	340 U	5.3 U
4-Chloroaniline	--		360 U	340 U	4.2 U
4-Chlorophenyl phenyl ether	--		360 U	340 U	4.2 U
4-Methylphenol	330		360 U	340 U	4.2 U
4-Nitroaniline	--		360 U	340 U	4.2 U
4-Nitrophenol	--		2200 U	2100 U	11 U
Acenaphthene	20000		360 U	340 U	4.2 U
Acenaphthylene	100000		360 U	340 U	4.2 U
Acetophenone	--		360 U	340 U	4.2 U
Anthracene	100000		360 U	340 U	4.2 U
Atrazine	--		430 U	410 U	4.2 U
Benzaldehyde	--		360 U	340 U	11 U
Benzo[a]anthracene	1000		360 U	340 U	4.2 U
Benzo[a]pyrene	1000		360 U	340 U	4.2 U
Benzo[b]fluoranthene	1000		360 U	340 U	4.2 U
Benzo[g,h,i]perylene	100000		360 U	340 U	4.2 U
Benzo[k]fluoranthene	800		360 U	340 U	4.2 U
Bis(2-chloroethoxy)methane	--		360 U	340 U	4.2 U
Bis(2-chloroethyl) ether	--		360 U	340 U	4.2 U
Bis(2-ethylhexyl) phthalate	--		38 J	61 J	4.2 U
Butylbenzyl phthalate	--		360 U	340 U	4.2 U
Caprolactam	--		360 U	340 U	1.1 J
Carbazole	--		360 U	340 U	4.2 U
Chrysene	1000		360 U	340 U	4.2 U
Dibenzo[a,h]anthracene	330		360 U	340 U	4.2 U
Dibenzofuran	7000		360 U	340 U	4.2 U
Diethyl phthalate	--		360 U	340 U	4.2 U

Table 7. Summary of Semivolatile Organic Compounds Detected in Intertidal Sediment Samples
MBA-Manorhaven, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	Sample Designation: / Sample Date: / Sample Depth (ft bls):	IS-1 / 7/27/2011 / 0-2	IS-2 / 7/27/2011 / 0-2	FB-072711 / 7/27/2011 / -
Dimethyl phthalate	--		360 U	340 U	4.2 U
Di-n-butyl phthalate	--		360 U	340 U	3.7 J B
Di-n-octyl phthalate	--		360 U	340 U	4.2 U
Fluoranthene	100000		360 U	340 U	4.2 U
Fluorene	30000		360 U	340 U	4.2 U
Hexachlorobenzene	330		360 U	340 U	4.2 U
Hexachlorobutadiene	--		360 U	340 U	4.2 U
Hexachlorocyclopentadiene	--		880 U	830 U	4.2 U
Hexachloroethane	--		360 U	340 U	4.2 U
Indeno[1,2,3-cd]pyrene	500		360 U	340 U	4.2 U
Isophorone	--		360 U	340 U	4.2 U
Naphthalene	12000		360 U	340 U	4.2 U
Nitrobenzene	--		360 U	340 U	4.2 U
n-Nitrosodi-n-propylamine	--		360 U	340 U	4.2 U
n-Nitrosodiphenylamine	--		360 U	340 U	4.2 U
Pentachlorophenol	800		880 U	830 U	26 U
Phenanthrene	100000		360 U	340 U	4.2 U
Phenol	330		360 U	340 U	4.2 U
Pyrene	100000		360 U	340 U	4.2 U

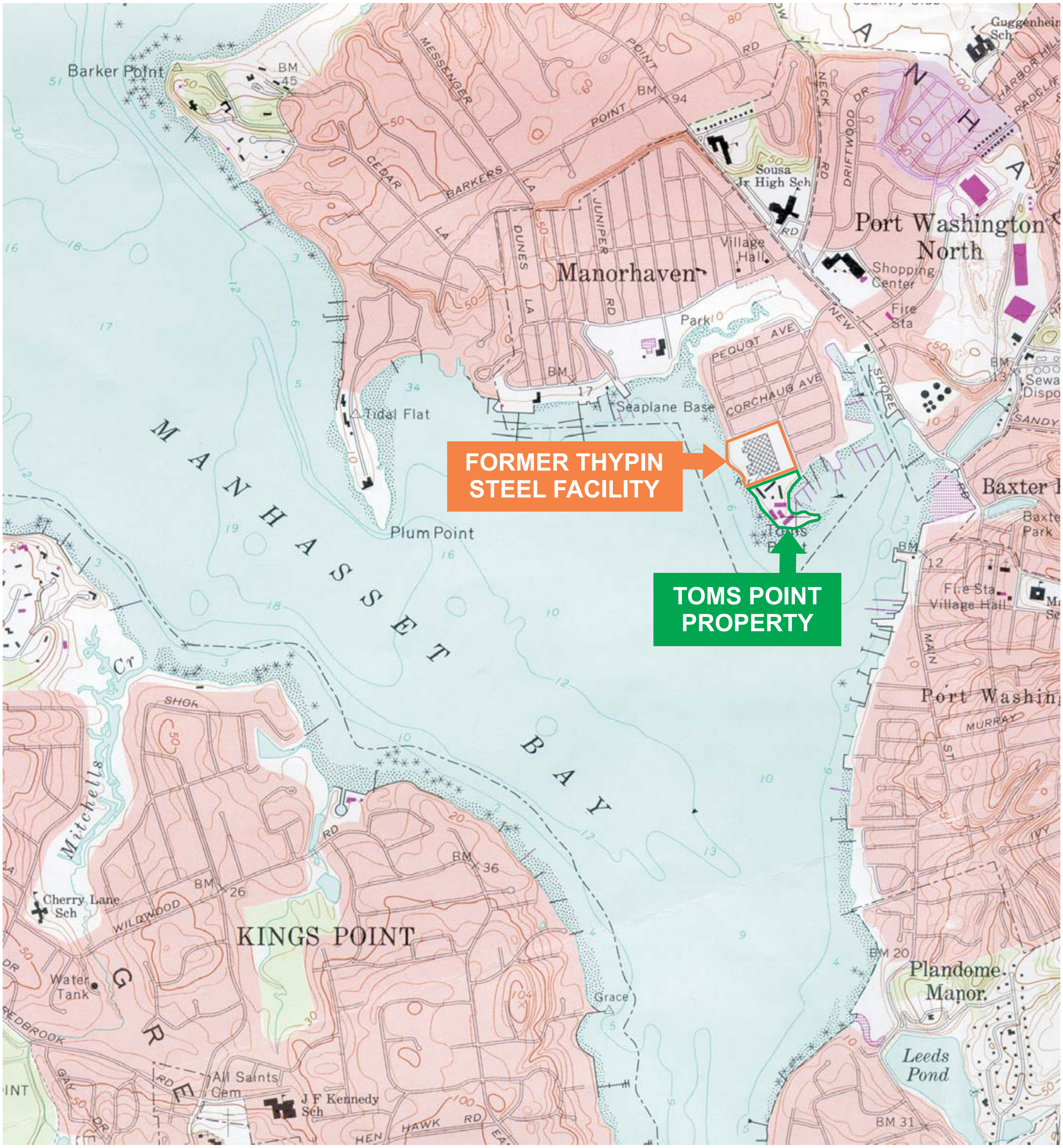
Notes:
J - Estimated value
U - Indicates that the compound was analyzed for but not detected at concentration shown
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No NYSDEC Part 375 Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

Table 8. Summary of Metals in Intertidal Sediment, MBA-Manorhaven, Manorhaven, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	IS-1 7/27/2011 0-2	IS-2 7/27/2011 0-2	FB-072711 7/27/2011 -
Aluminum	--		1490 B	1470 B	125 U ^
Antimony	--		0.87 U	0.73 U	4 U
Arsenic	13		2.1	2	2.5 U
Barium	350		8.6	7.7	2.5 U
Beryllium	7.2		0.55 U	0.45 U	2.5 U
Cadmium	2.5		0.55 U	0.45 U	2.5 U
Calcium	--		391 B	462 B	57.8 J
Chromium	30		8	8.7	2 J B
Cobalt	--		2.2	0.88	2.5 U
Copper	50		6.6	5.2	5 U
Iron	--		6810	5920	125 U
Lead	63		3.8	2.8	2.5 U
Magnesium	--		1070	1100	250 U
Manganese	1600		86	46.5	6 U
Mercury	0.18		0.061 U	0.057 U	0.2 U
Nickel	30		25.6	4.2	2.5 U
Potassium	--		681	744	27.1 J B
Selenium	3.9		0.34 J	0.29 J	5 U
Silver	2		0.55 U	0.45 U	2.5 U
Sodium	--		3290	2710	250 U
Thallium	--		0.76 U	0.63 U	3.5 U
Vanadium	--		7.5	7.1	0.75 J
Zinc	109		24	19.8	25 U

Notes:
J - Estimated value
B - Compound was found in the blank and sample
U - Indicates that the compound was analyzed for but not detected at concentration shown
mg/kg - Milligrams per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No NYSDEC Part 375 Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards
^ -Continuing calibration varification (CCV)
standard: Instrument related QC exceeds the control limits

FIGURES



QUADRANGLE LOCATION

N

0 2000’

SOURCE:
USGS; 1979. Hicksville, New York
7.5 Minute Topographic Quadrangle

Title:

SITE LOCATION MAP

OU-2 AAR / RAWP
FORMER THYPIN STEEL FACILITY, MANORHAVEN, NEW YORK

Prepared for:

MBA-MANORHAVEN, LLC
PRINCETON, NEW JERSEY

ROUX ASSOCIATES, INC. Environmental Consulting & Management	Compiled by: J.P.	Date: 17JUL13	FIGURE
	Prepared by: B.H.C.	Scale: AS SHOWN	1
	Project Mgr.: J.P.	Project No.: 0771.0001Y000	
	File: 0771.0001Y328.01.CDR		

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LEGEND

SS/IA-1 — DESIGNATION AND LOCATION OF SUB-SLAB AND INDOOR AIR SAMPLING LOCATIONS

AMB-1 — DESIGNATION AND LOCATION OF OUTDOOR AMBIENT AIR SAMPLE

OSB-1 — COMPLETED WATER QUALITY SAMPLING LOCATION (NOVEMBER 2005 & FEBRARY 2006)

Title:

SOIL VAPOR AND AIR SAMPLING LOCATIONS

FORMER THYPIN STEEL FACILITY
MANORHAVEN, NEW YORK

Prepared For:

MBA-MANORHAVEN, LLC

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.P.	Date: 23JUL13	FIGURE
Prepared by: J.A.D.	Scale: AS SHOWN	2
Project Mgr: J.P.	Project: 0771.0001Y000	
File: 0771.0001Y328.03.DWG		

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LEGEND

OMW-1	LOCATION AND DESIGNATION OF PROPOSED MONITORING WELL CLUSTER
OSB-1	LOCATION AND DESIGNATION OF COMPLETED WATER QUALITY SAMPLE (NOVEMBER 2005 AND FEBRUARY 2006)
MW-26	LOCATION AND DESIGNATION OF EXISTING MONITORING WELL

Title:

PROPOSED MONITORING WELL CLUSTER LOCATIONS

FORMER THYPIN STEEL FACILITY
MANORHAVEN, NEW YORK

Prepared For:

MBA-MANORHAVEN, LLC

ROUX

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.P.	Date: 23JUL13	FIGURE
Prepared by: J.A.D.	Scale: AS SHOWN	3
Project Mgr: J.P.	Project: 0771.0001Y000	
File: 0771.0001Y328.02.DWG		

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PLATE

1. Contaminants of Concern Detected in Groundwater

N

OSB-1	10 FT	20 FT	30 FT	40 FT	50 FT	60 FT
1, 1 DCA	5U	5U	0.77J	2.6J	5U	5U*
1, 1 DCE	5U	5U	1.6J	3J	5U	5U*
1, 2 DCE	5U	5U	17	31	5U	5U*
1, 1, 1 TCA	5U	5U	0.65JH	5U	5U	5U*
PCE	5U	1.2J	3.7J	5U	5U	5U*
TCE	1.4J	660	5,500	710	14	13*
VC	5U	5U	2.5J	1.3J	5U	5U*

OSB-2	10 FT	20 FT	30 FT	40 FT	50 FT	60 FT
1, 1 DCA	5U*	5U*	23	21*	5U*	5UM
1, 1 DCE	5U*	5U*	40	2.4J	5U*	5U
1, 2 DCE	5U*	0.74J	99	3.4J	5U*	5U
1, 1, 1 TCA	5U*	5U*	170	4.5J	5U*	5UM
PCE	5U*	3.3J	110	1.1J	5U*	1.3J
TCE	5U*	9.5*	230	19*	5U*	1.5J
VC	5U*	5U*	5U	0.94JM	5U*	5U

OSB-3	10 FT	20 FT	30 FT	40 FT	50 FT	60 FT
1, 1 DCA	5U	5U	3.3J	5U*	5U*	2.7J
1, 1 DCE	5U	5U	1.9J	1.4J*	5U*	1.4J
1, 2 DCE	5U	5U	16	48*	1J	7.2*
1, 1, 1 TCA	5U	5U	1.4JH	5U*	5U*	5U*
PCE	5U	5U	2.3J	5U*	5U*	0.74J
TCE	5U	2.1J	290*	630*	34*	410*
VC	5U	5U	0.88J	1.5J	5U*	5U*

OSB-6	15 FT	25 FT	35 FT	45 FT	55 FT	65 FT	75 FT
1, 1 DCA	5U	5U	5U	5U	5U	5U	5U*
1, 1 DCE	5U	5U	5U	5U	5U	5U	5U*
1, 2 DCE	5U	5U	12J	47J	5U	5U	5U*
1, 1, 1 TCA	5U	5U	5U	5U	5U	5U	5U*
PCE	5U	5U	5U	5U	5U	5U	5U*
TCE	8.5	38	700	2,400	5U	5U	5U*
VC	5U	5U	5U	5U	5U	5U	5U*

OSB-5	10 FT	20 FT	30 FT	40 FT	50 FT	60 FT
1, 1 DCA	5U	5U	5U	14	5U	5U
1, 1 DCE	5U	5U	5U	2.3J	5U	5U
1, 2 DCE	5U	5U	4.2J	9.2	5U	5U
1, 1, 1 TCA	5U	5U	5U	5U	5U	5U
PCE	5U	5U	5U	2.5J	5U	5U
TCE	1.4J	3.3J	91	210	5U	5U
VC	5U	5U	5U	2J	5U	5U

OSB-4	10 FT	20 FT	30 FT	40 FT	50 FT	60 FT	70 FT
1, 1 DCA	5U	5U	5U	5U	5U	5U	5U*
1, 1 DCE	5U	5U	5U	5U	1.3J	5U	5U*
1, 2 DCE	5U	5U	5U	5U	23	5U	5U*
1, 1, 1 TCA	5U	5U	5U	5U	5U	5U	5U*
PCE	5U	5U	5U	5U	5U	5U	5U*
TCE	5U	5U	11	17	240	5U	5U*
VC	5U	5U	5U	5U	9.6	5U	5U*

LEGEND

OSB-4 ● WATER-QUALITY BORING LOCATION AND DESIGNATION

NYSDEC NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

AWQSGVs AMBIENT WATER-QUALITY STANDARDS AND GUIDANCE VALUES

GROUNDWATER SAMPLING LOCATION DESIGNATION

OSB-3	10 FT
1, 1 DCA	5U
1, 1 DCE	5U
1, 2 DCE	5U
1, 1, 1 TCA	5U
PCE	5U
TCE	5U
VC	5U

1,1-DICHLOROETHANE → 1, 1 DCA
1,1-DICHLOROETHENE → 1, 1 DCE
CIS-1,2-DICHLOROETHENE → 1, 2 DCE
1,1,1-TRICHLOROETHENE → 1, 1, 1 TCA
TETRACHLOROETHENE → PCE
TRICHLOROETHENE → TCE
VINYL CHLORIDE → VC

DEPTH SAMPLED IN FEET BELOW LAND SURFACE

DATA IN MICROGRAMS PER LITER (UG/L)

U - ANALYTE WAS NOT DETECTED AT OR ABOVE THE REPORTING LIMIT
J - ESTIMATED VALUE
H - ALTERNATE PEAK SELECTION UPON ANALYTICAL REVIEW
M - MANUALLY INTEGRATED COMPOUND
* - VALUE CHANGED OR QUALIFIER ADDED BY DATA VALIDATOR

INTERMEDIATE DEPTH GROUNDWATER SAMPLE → 5U

SHALLOW DEPTH GROUNDWATER SAMPLE → 19 ← GROUNDWATER CONCENTRATION THAT EXCEEDS NYSDEC AWQSGVs

NOTES

OSB-1, OSB-2, OSB-3 WERE ALL SAMPLED IN NOVEMBER 2005.

OSB-4, OSB-5, OSB-6 WERE ALL SAMPLED IN FEBRUARY 2006.

80' 0 80'
APPROXIMATE SCALE

Title:

CONTAMINANTS OF CONCERN DETECTED IN GROUNDWATER

FORMER THYPIN STEEL FACILITY
MANORHAVEN, NEW YORK

Prepared For:

MBA-MANORHAVEN, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.P.	Date: 23JUL13	PLATE
Prepared by: J.A.D.	Scale: AS SHOWN	1
Project Mgr: J.P.	Project: 0771.0001Y000	
File: 0771.0001Y328.04.DWG		

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