SITE INVESTIGATION RESULTS REPORT

VOLUME I OF VI

FORMER THYPIN STEEL, INC. FACILITY
MANORHAVEN, NEW YORK

November 16, 2001

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LIST OF ACRONYMS

µg/dL	micrograms per deciliter
µg/L	micrograms per liter
1 E-4	one in ten thousand
1 E-6	one in one million
1,1-DCE	1,1-dichloroethene
1,2-DCE	cis-1,2-dichloroethene
AAC	American Aeronautical Corporation
AGC	Annual Guidance Concentrations
AIC	Acceptable Intake-Chronic
AWQSGVs	Ambient Water-Quality Standards and Guidance Values
bls	below land surface
BN	Base Neutral Compound
CFSI	Curtiss Flying Service, Inc.
CN	Cyanide
COPCs	Chemicals of Potential Concern
CVOC	Chlorinated Volatile Organic Compounds
DNAPL	Dense Non-Aqueous Phase Liquids
DOT	Department of Transportation
DUSR	Data Usability Summary Report
EI	Environmental Investigation
EM	Electromagnetic Detection
ESA	Environmental Site Assessment
FYNAV	First Yale Naval Aviation Unit
GSD	Geometric Standard Deviation
HQ	Hazard Quotient
HWIR	Hazardous Waste Identification Rule
ILCR	Incremental Lifetime Cancer Risk
IWP	Investigative Work Plan
MAC	Marine Airport Corporation
mg/kg	milligrams per kilogram
NCDOH	Nassau County Department of Health

LIST OF ACRONYMS

NGVD	National Geodetic Vertical Datum
NOAEL	No Observed Adverse Effect Level
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
OVA	Organic Vapor Analyzer
PAEI	Plausible Average Exposed Individual
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethane
PID	Photoionization Detector
ppb	parts per billion
ppm	parts per million
PVC	Polyvinyl Chloride
PWMPC	Port Washington Metal Products Corporation
RA	Risk Assessment
RAGS	Risk Assessment Guidance for Superfund
RBCs	Risk-Based Concentrations
RCRA	Resource Conservation and Recovery Act
RfDs	Reference Doses
RMEI	Reasonable Maximum Exposed Individual
RSCOs	Recommended Soil Cleanup Objectives
SCGs	Standards, Criteria, and Guidances
SI	Supplemental Investigation
SOW	Scope of Work
SPLP	Synthetic Precipitation Leaching Procedure
STARS	Spill Technology and Remediation Series
STL	Severn Trent Laboratories
SU	Standard Units
SVOCs	Semivolatile Organic Compounds
TAGM	Technical and Administrative Guidance Memorandum

LIST OF ACRONYMS

TAL	Target Analyte List
TCA	1,1,1-trichloroethane
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TICs	Tentatively Identified Compounds
TOC	Total Organic Carbon
TOGS	Technical and Operational Guidance Series
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
Utensco	United Utensils company, Inc.
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program
VOCs	Volatile Organic Compounds

CERTIFICATION

Roux Associates, Inc. along with its associated engineering design firm Remedial Engineering, P.C., have completed this Site Investigation Results Report describing the scope and results of the Investigation Work Plan and Supplemental Investigation at the former Thypin Steel, Inc. facility in Manorhaven, New York. This certification is being submitted to the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health in accordance with the Voluntary Cleanup Agreement (Index No. V00336-1), effective January 2, 2001.

Remedial Engineering, P.C. hereby certifies that the scope of work was implemented and remedial action activities were completed in accordance with the intent of the NYSDEC-approved Voluntary Cleanup Agreement, effective January 2, 2001, and as described in this document.

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1.0 INTRODUCTION

On behalf of MBA-Manorhaven, LLC, Roux Associates, Inc. (Roux Associates) has prepared this Site Investigation Results Report for the former Thypin Steel, Inc. (Thypin Steel) facility in Manorhaven, New York (Site) (Figure 1). The investigation objectives were designed to develop additional Site-specific data to supplement previous investigation results, and to develop remedial alternatives for the Site-related impacts based on the intended future residential use of the Site. The investigation was performed pursuant to the Voluntary Cleanup Agreement (VCA) between the NYSDEC and MBA-Manorhaven, LLC, dated January 2, 2001 (Index Agreement No. V00336-1). This report has been prepared to comply with the requirements of Part I of the VCA.

To document the scope of work, methodology, and protocols for the Site investigation, an Investigation Work Plan (IWP) was prepared and submitted on September 26, 2000 to NYSDEC. The IWP was included as Appendix B of the VCA. The NYSDEC approved the IWP Work Plan on October 11, 2000 (Appendix A). The field portion of the IWP was completed during the fall of 2000 and, based on an evaluation of the soil and groundwater quality data that were generated, a supplemental phase of work was required to achieve the investigation objectives. A Supplemental Investigation (SI) Scope of Work (SOW) was submitted to the NYSDEC on January 23, 2001, and was approved by the NYSDEC on February 14, 2001 (Appendix A).

Because the overall scope of work for the IWP and SI was intended to be flexible, modifications, where necessary to meet the project objectives, were made during the course of both field programs. The modifications included the collection of additional soil samples for a Risk Assessment, the additional verification of the absence of dense non-aqueous phase liquids (DNAPL) using a hydrophobic dye test, the excavation of test pits/trenches, and the characterization of soil gas. The modifications to the field program were discussed with and approved by the NYSDEC prior to their implementation.

All investigation activities including sampling performed during the IWP and SI (mentioned below and discussed in detail throughout the report) have been completed in accordance with the VCA. The investigation activities generated a very substantial amount of data that included the

Site media characterization (i.e., soil, subsurface building structure material, groundwater, and soil gas), delineation of impacts, and whether any of the identified impacts would pose a current or future risk above a *de minimis* risk level to human health at the Site. These include sampling from 76 soil borings, 33 monitoring wells, and 37 test pits/trenches throughout the Site. The results of the investigation activities (which are presented in Section 4.0) indicate that no further investigation activities are necessary in connection with this Site.

The results of the previous investigations coupled with the results of the IWP and the SI were used to perform a Risk Assessment to determine whether the constituents detected in the soil, subsurface building structure materials, groundwater, and soil gas pose a potential risk to human health based on the intended future residential use of the Site. As indicated in Section 8.0 of this report, no significant risks to human health are present at the Site.

The purpose of this report is to provide the results of the IWP and SI. Information regarding any remedial objectives (i.e., one of the investigation project objectives) will be submitted to the NYSDEC in a separate report.

The remainder of the report is organized into the following sections:

- Section 2.0 Background Information;
- Section 3.0 Site Investigation Scope of Work;
- Section 4.0 Results of the Site Investigation;
- Section 5.0 Remedial Action;
- Section 6.0 Applicable or Relevant and Appropriate Requirements;
- Section 7.0 Contaminant Fate and Transport;
- Section 8.0 Risk Assessment;
- Section 9.0 Findings and Conclusions; and
- Section 10.0 References.

2.0 BACKGROUND INFORMATION

A description of the background information is provided below, which includes the Site setting, history, current use, future redevelopment plans, and previous investigations/remedial activities.

2.1 Site Setting

The Site is located at 5 Sagamore Hill Drive in the Village of Manorhaven, New York. It is bordered to the north by Yennicock Avenue, to the south by Toms Point Lane, to the east by Sagamore Hill Drive, and to the west by Manhasset Bay (Plate 1). The property is approximately 11 acres in size.

2.2 Site History, Current Use, and Future Redevelopment Plans

A description of the Site history, current use, and future redevelopment plans is provided below.

2.2.1 Site History

The Site history was developed based in part on information from MBA-Manorhaven, LLC, interpretation of fire insurance maps (i.e., Sanborn Maps) for the years 1931, 1936, 1951, 1973, and 1980 and aerial photographs for the years 1966, 1990, and 1994, and other historical data, including the book titled "Flight of Memory, Long Island's Aeronautical Past" written by Elly Shodell (Shodell, 1995).

The Site is known as the location of the first transatlantic commercial flights from the Unites States to Europe. In addition to its early use as an airport, several manufacturing firms operated at the Site, including firms that worked for the United States government during World War II and the Korean Conflict. A summary of the past and current owners and operators of the Site is provided in Tables 1 and 2.

Based on the available information, the Site was first occupied by the First Yale Naval Aviation Unit (FYNAU) for flight training of US Navy personnel during World War I. The FYNAU began their flight training in 1916, but the date that the FYNAU ceased operations at the Site is unknown. During the time period of 1916 through 1919, commercial businesses began to occupy the Site. The Curtiss-Wright Flying School began operations in 1916, while the Curtiss Flying Service, Inc. (CFSI) began operations as an airline in 1919. CFSI utilized four flying

boats, probably made of wood, carrying six passengers each from the Site to Atlantic City, New Jersey. The date that the Curtiss-Wright Flying School and the CFSI ceased operations at the Site has not been determined.

In 1929, the American Aeronautical Corporation (AAC) began operations at the Site as a manufacturer of seaplanes, a flying school, and as an airplane terminal. The startup of the AAC was partially funded by Premier Benito Mussolini of Italy. As shown in a 1931 Sanborn map, the AAC building was present in the central portion of the Site. Based on the available information, the AAC ceased operations at the Site in 1931.

Marine Airport Corporation (MAC) was present at the Site from 1936 through the early 1940s. As shown in a 1936 Sanborn map, the MAC building was present in the southwestern portion of the Site. Information regarding the type of operations and when MAC ceased operations is unavailable at this time.

The available information does not indicate whether any of the above-mentioned businesses owned the Site. In 1943, the United States General Services Administration (GSA) acquired the Site for their use.

In 1943, Grumman Aircraft Engineering Corporation (Grumman) began operating at the Site as a manufacturer of airplanes and airplane parts. Grumman started operations in response to the need for warplanes and engine parts during World War II. The Site features shown on a 1945 Plot Plan (Appendix B) indicate the presence of 22 buildings and several subsurface structures. These subsurface structures apparently included three 20-ft diameter leaching wells, an unknown number of leaching chambers, and 84 sanitary leaching wells (Plate 1). The three leaching wells are located in Building #6 near the center of the Site, while the leaching chambers are present near Building #6 in the corner of a building labeled 'cafeteria'. The leaching chambers were also located adjacent to a metals plating area identified in a 1961 Sanborn map. The 84 sanitary leaching wells were identified in the northwestern portion of the Site. 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 at the Site would likely include metals plating solutions/sludge, 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. The Grumman facility was operating on a schedule of 24 hours a day, seven days a week. In 45 months of operation, Grumman built 17,000 airplanes. Based on the available information, Grumman ceased operations at the Site in 1946.

In response to the Korean Conflict, Republic Aviation Corporation (Republic) began operations at the Site in 1951 as a manufacturer of jet fighter bomber wings. 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 utilized the same buildings and subsurface structures (e.g., leaching wells) as Grumman. Therefore, in Roux Associates' opinion, it is likely that the leaching structures continued to be used for the discharge of process wastes to the subsurface. The process wastes would likely include metals plating solutions/sludge, solvents and paints, which are typically used in the manufacturing of airplane parts. After the Korean Conflict ended, Republic ceased operations at the Site in 1958. During the same period that Republic was operating, the Port Washington Metal Products Corporation (PWMPC) was operating at the Site as a manufacturer of metal heaters (type unknown). As shown in a 1951 Sanborn map, the PWMPC building was present along the northern portion of the Site. No other information regarding the PWMPC operations was available.

In 1958, after the Site had been utilized for more than 40 years of military and commercial operations, including at least almost 30 years for the manufacturing of seaplanes, airplanes, airplane parts, and metal heaters, the Thypin Realty Company purchased the Site from the United States GSA. No new construction occurred when the Thypin Realty Company took ownership of the site, and they utilized the existing buildings from the previous tenants. No fill material was placed at the site when the Thypin Realty Company took ownership or during the site usage after 1958. The Thypin Steel Company then began utilizing the Site for the storage and cutting of steel products, which they did for their entire tenure (1958 through 1988) at the Site. 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.

From 1961 through 1985, three manufacturing firms were present at the Site. These firms included a firm that manufactured aluminum doors and windows (name unknown), United Utensils Company, Inc. (Utensco) that manufactured stainless steel and plastic vessels (see below), and Sound Spars that manufactured sail boat masts. No other information regarding the operations of the door and window manufacturer and Sound Spars was obtained. Based on the available information, it is unknown when the door and window manufacturer ceased operations, while Sound Spars ceased operations in 1980.

An environmental assessment of the Site was performed by Soil Mechanics Environmental Services (Soil Mechanics) in 1989. A Site inspection was performed as part of the environmental assessment that included the portion of the Site where Utensco operated. Utensco's operations were identified to be located in the north-north central portion of the buildings on the Site. During the inspection, drums of solvents, hydraulic oils, and other chemicals (e.g., polyethene) were identified. A plastic mold production area, where plasticizers were likely used, was identified. Two concrete cradles were identified during the current environmental investigation, which according to a former Thypin Steel employee, were used by Utensco in the manufacturing of their stainless steel and plastic vessels (Plate 1). Additionally, two dry wells (unknown location) were identified by Soil Mechanics along with isolated staining on the floor of the Utensco building. Utensco ceased operations at the Site in 1985.

The Site was sold from the Thypin Realty Company to the Manhasset Bay Associates in 1983. In 1997, the Site was then acquired by its current owner, MBA-Manorhaven, LLC.

2.2.2 Current Use

The Site has been vacant since 1988. The buildings and aboveground structures were demolished and removed in the early 1990s.

2.2.3 Future Redevelopment Plans

The Site is planned for redevelopment that includes the construction of 96 townhouse units, a recreation building, a swimming pool, a playground, and a boat pier. The future town homes will be known as the "Villas on Manhasset Bay." According to the redevelopment construction

firm, Island Estates, the benefits of this redevelopment include providing high quality residential housing, increased property value of the community, permanent aesthetic restoration of the Site without public expenditure, and an increase in the allocation of tax revenues to the various applicable taxing jurisdictions (Villas on Manhasset Bay, 2000).

2.3 Previous Environmental Investigations/Remedial Activities

Previous environmental investigations/remedial activities were completed at the Site as part of the building demolition and planned property transfer. A brief summary of the previous environmental investigations/remedial activities and key results is provided below.

Environmental Assessment, Existing Thypin Steel Site,
Port Washington (Manorhaven), New York
Soil Mechanics Drilling Corporation, May 1989

A Phase I Environmental Site Assessment (ESA) was performed in 1989 to characterize the environmental conditions at the Site. The scope of work included a visual inspection of the Site, a regulatory agency file review, a soil gas survey, soil borings and sampling, monitoring well installation, water-level measurements, and groundwater sampling. A total of 35 soil gas points and 18 soil borings were sampled, while six monitoring wells (formerly designated as MW-1, MW-6, MW-10, MW-14, MW-17, and MW-20) were installed and groundwater sampled (Plate 2). Of the 18 borings drilled, only B-1 through B-8 and B-90, B-100, B-110, B-120, B-130, and B-140 were identified in Soil Mechanics' report. Four (B-90, B-100, B-110, and B-120) of the 18 soil borings were sampled through drywells. One round of water-level measurements was collected from the six monitoring wells. The soil and groundwater samples were analyzed for volatile organic compounds (VOCs), metals, and Total Petroleum Hydrocarbons (TPH). The soil gas was screened for VOCs in the field using an organic vapor analyzer (OVA).

The key results of this Phase I ESA are summarized below.

- Based on a Site inspection in 1989, the buildings were present. Additionally, 44 drywells, 78 empty drums (previous contents noted to be laticrete, soluble oil, anti-freeze and deoxider), 45 full drums (noted contents were oakite, hydraulic oil, polyethylene and trichloroethene [TCE]), stained pavement and surface soil, four electrical transformers, two fuel oil aboveground storage tanks, trash, wood and metal debris, abandoned cars,

stockpiles of asphalt, two truck bays containing floor drains, and two drum storage areas were observed.

- The results of the regulatory agency file review indicated that no violations existed for the Site, and that the Nassau County Department of Health (NCDOH) had inspected the sewage pump station, which they viewed as in "disrepair."

- Based on an inspection of the soil, the Site was underlain by fill material comprised of sand, silt and gravel, which overlies native soil comprised of sand and trace silt and gravel. Based on a review of the geologic logs, the fill material ranged in thickness from 2 feet (ft) to 11 ft.

- The results of the soil gas survey indicated that concentrations of organic compounds ranged from not detected to 100 parts per million (ppm) at a depth of 3 ft to 4 ft below land surface (bls). Please note that there are no local, state or federal Standards, Criteria, and Guidances (SCGs) for total VOC concentrations in soil gas.

- No organic vapors were detected using an Organic Vapor Analyzer (OVA) in any of the soil samples collected at the Site.

- The soil quality results indicated that beryllium and zinc were the only metals detected above the NYSDEC Recommended Soil Cleanup Objectives (RSCOs) at the Site. Specifically, these metals were detected in soil throughout the Site, outside of the former building footprint. Additionally, these metals were distributed through the soil column from 2 ft to 10 ft bls, which are above groundwater.

- The soil quality results indicated that VOCs were detected in soil at concentrations below the NYSDEC RSCOs at the Site. TPH concentrations in the soil ranged from not detected to 310 parts per million (ppm). Please note that there are no local, state or federal SCGs for TPH.

- The soil quality results from four drywells (B-90, B-100, B-110 and B-120) indicated that concentrations of six metals (cadmium, chromium, copper, mercury, nickel and zinc) were detected above the NYSDEC RSCOs. (No sample depths were reported by Soil Mechanics Drilling Corporation.) One VOC (xylene at 1900 parts per billion [ppb]) was detected at a concentration above its NYSDEC RSCO of 1200 ppb in Drywell B-90. TPH concentrations in the drywell material ranged from 620 ppm to 140,000 ppm.

- Depth to groundwater ranged from 8 ft to 10 ft bls. The estimated groundwater flow direction at the water table was west-southwest toward Manhasset Bay, based on one round of water-level measurements.

- The groundwater quality results indicated that the concentrations of metals detected in groundwater were below the NYSDEC Ambient Water-Quality Standards and Guidance Values (AWQSGVs). TPH was not detected in any of the groundwater samples.

Drywell Excavation and Removal Program
Soil Mechanics Drilling Corporation, January 14 through February 25, 1992

A drywell excavation and removal program was performed at the Site in 1992. A total of 77 drywells were excavated and removed. Most of the drywells were located within the northwestern portion of the Site (former leaching field), while a few were distributed throughout the Site. Prior to excavation activities, each drywell was inspected for the presence of liquids, and subsequently pumped out if present. As the excavation proceeded, the soil was screened for VOCs using a photoionization detector (PID). If the field screening or visual inspection results indicated that the soil was contaminated, those soils were then segregated for proper disposal.

The key results of the Drywell Excavation and Removal Program are summarized below.

- Six of the 77 drywells contained liquids, which were subsequently pumped out into six 55-gallon drums. These drums were disposed offsite.
- A total of 737.5 cubic yards of soil and demolition debris (i.e., drywell structures) were disposed offsite as construction and demolition debris. Any soil that was considered contaminated was disposed offsite separately from the construction and demolition debris.
- After each of the excavations was completed, the excavations were backfilled with clean sand.

Underground Storage Tank Closure Reports
Soil Mechanics Drilling Corporation, February 10, 1992 and March 25, 1992

In 1992, an Underground Storage Tank (UST) Removal Program was performed to remove 12 USTs (i.e., eight fuel oil, three gasoline, and one diesel) ranging in capacity from 100 gallons to 25,000 gallons (Plate 1). The NYSDEC or the NCDOH inspected the excavations for impacts.

The key results of the UST Removal Program are summarized below.

- No impacts were identified in any of the UST excavations.
- The NYSDEC or the NCDOH approved the backfilling of each former UST excavation.

Water-Level Measurement Study
Soil Mechanics Environmental Services, October 30, 1997

In 1997, continuous water-level measurements were collected from three new monitoring wells (currently designated as MW-1, MW-2, and MW-3) for approximately one month using data loggers to determine the minimum and maximum water-level elevations at the Site (Plate 2). (Monitoring Well MW-1 is not the same well as MW-1 installed by Soil Mechanics during the May 1989 Environmental Assessment.)

The key results of the Water-Level Measurement Study are summarized below.

- The results of the continuous water-level measurements indicated a daily tidal fluctuation that ranged from 0.04 ft to 0.16 ft at the Site.
- The results also indicated a monthly groundwater level fluctuation of 0.1 ft to 0.2 ft at the Site.

Phase I Environmental Site Assessment
CA Rich Consultants, Inc., February 8, 1999

In 1999, a Phase I ESA was performed by CA Rich Consultants, Inc. (CA Rich) to characterize the environmental conditions at the Site. The scope of work for this Phase I ESA included a visual inspection of the Site, a regulatory agency file review, a historical Site review using fire insurance maps and aerial photographs, and an inspection of subsurface materials from seven test pits (TP-1 through TP-7) and analysis of two soil samples from TP-6 (Plate 2).

The key results of this Phase I ESA are summarized below.

- Based on the Site inspection, the buildings were no longer present, the Site contained overgrown brush and some trees, portions of the former building footprint were covered with crushed stone and gravel, and no surficial staining was observed. Two manholes were identified, one on the eastern and one on the western portion of the Site. The function of these manholes was unknown. A total of three monitoring wells were identified along the eastern, northwestern and southern Site boundaries, which were used to determine the depth to groundwater beneath the Site.
- No impacts to the soil were identified within Test Pits TP-1 through TP-5 and TP-7.
- The results of the subsurface material inspection indicated that only the soil from Test Pit TP-6, located within the area of the former metals plating, contained gray and blue staining. The staining was identified in a 1 ft to 2 ft layer from approximately 10 ft to 15 ft bls. At approximately 20 ft bls, black sand and silt were encountered that contained

petroleum odors. A sample from each of the two stained areas was analyzed; the soil with blue and gray staining for metals and the black-stained soil for TPH.

Please note that the black sand and silt containing the petroleum odors identified at 20 ft bls were noted above groundwater according to the CA Rich Phase I. As discussed in the Soil Mechanics 1989 study and the Roux Associates studies, groundwater was encountered at approximately 8 ft to 10 ft bls throughout the Site.

- The soil quality results of the gray and blue stained soil indicated that metals concentrations of arsenic, cadmium, copper, chromium, lead, nickel and zinc were detected above the NYSDEC RSCOs. The soil quality results of the black stained soil indicated that petroleum hydrocarbons were present.

Phase II Environmental Investigation
CA Rich Consultants, Inc., April 12, 1999

A Phase II Environmental Investigation (EI) was performed in 1999 to further address potential environmental concerns identified during the Phase I ESA performed by CA Rich. The scope of work for this Phase II Investigation included the excavation of nine test pits (TP-6A through TP-6E and TP-8 through TP-11) from land surface to groundwater (Plate 2). Five of the nine test pits (TP-6A through TP-6E) were excavated surrounding former Test Pit TP-6, which the soil quality results during the Phase I ESA indicated that metals concentrations were detected above the NYSDEC RSCOs. The remaining test pits (TP-8 through TP-11) were located throughout the Site. Soil samples collected were analyzed for VOCs, semivolatile organic compounds (SVOCs), and metals.

One groundwater sample (GW-01) was collected adjacent to the northern portion of the former plating area using the Geoprobe™ method (Plate 2). This groundwater sample was analyzed for VOCs, SVOCs, and metals.

The key results of this Phase II EI are summarized below.

- No impacts to the soil were identified within Test Pits TP-6A, TP-6B, TP-6C, TP-6E, TP-8, and TP-11.

- The remnants of an abandoned drain were identified in Test Pit TP-6D at approximately 15 ft bls. Blue-green and gray sludge was encountered within the cement collar and brick wall of the abandoned drain. A sample of the sludge was analyzed, and the results indicated that CVOCs, SVOCs, metals, and polychlorinated biphenyls (PCBs) were detected. Metals were the only constituents to exceed the NYSDEC RSCOs. Although the CVOCs were detected below their respective regulatory guidelines, their presence in

a saturated soil sample appeared to be a reflection of groundwater quality. Additionally, the sample was tested using the Toxicity Characteristic Leaching Procedure (TCLP), and the results indicated that the sample was non-hazardous. The test pit was then extended to the north, west and east, but no visual impacts were identified.

- The soil encountered in Test Pits TP-9 and TP-10, located near the former USTs, indicated staining. A sample from each test pit was analyzed, and the results indicated that one SVOC (i.e., chrysene) in Test Pit TP-9 and metals in soil from both test pits were detected above the NYSDEC RSCOs.

- The groundwater quality results near the former plating area indicated detections of CVOCs, SVOCs, and metals. CVOCs were the only constituents detected above the AWQSGVs.

Limited Groundwater Quality Investigation
Roux Associates, Inc., June 7, 1999

A limited groundwater quality investigation was performed in 1999 to further evaluate the CVOCs previously detected in on-site groundwater (i.e., at the water table), and to determine if there was an off-site groundwater source of CVOCs impacting the Site. The scope of work for this investigation included water-level measurements and groundwater sampling from Monitoring Wells currently designated as MW-1, MW-2, and MW-3 (Plate 2). These monitoring wells are screened to straddle the water table. Monitoring Wells MW-6, MW-10, MW-14, MW-17 and MW-20 installed during the May 1989 Phase I ESA were no longer present at the Site (Plate 2).

Water-level measurements were collected from Monitoring Wells MW-1 and MW-2 (Plate 2) using an electronic measuring scope and from Staff Gauge-1. Staff Gauge-1 was installed into Manhasset Bay, adjacent to the western portion of the Site. Please note that the installation of the staff gauge was deemed necessary because Monitoring Well MW-3 was dry and, therefore, a water-level measurement could not be taken along the western Site boundary.

A total of 13 groundwater samples were collected from 11 Geoprobe™ borings (GW-1 through GW-11) and from the two existing functional monitoring wells (i.e., MW-1 and MW-2) (Plate 2). Please note that the groundwater samples collected using the Geoprobe™ method were from the top 2 ft of the water table. Each groundwater sample was inspected for impacts

(i.e., sheen, odors and PID readings). The groundwater samples were analyzed for only CVOCs using the United States Environmental Protection Agency (USEPA) Method 8260.

Additionally, the 11 Geoprobe™ borings, the three monitoring wells, and the staff gauge were surveyed for their measuring point or land surface elevation and location by a New York State-licensed surveyor.

The key results of this investigation are summarized below.

- Due to the limited water-level data (i.e., two wells and one staff gauge), a groundwater flow map could not be accurately drawn. However, since the water-level measurements made in MW-1 and MW-2 were generally consistent with previous water-level measurements made in other wells at the Site, the estimated groundwater flow direction was west-southwest toward Manhasset Bay.

- During the sampling, the groundwater was inspected, and the results indicated that no sheen or odors were present and PID readings were 0 ppm.

- Eight CVOCs were detected in groundwater at the Site (Table 3). Five of the eight CVOCs (i.e., PCE, TCE, 1,1-dichloroethene [1,1-DCE], cis-1,2-dichloroethene [1,2-DCE] and vinyl chloride) were detected above the AWQSGVs. CVOCs were not detected in groundwater at GW-4, GW-5 and GW-6, along Manhasset Bay. CVOCs were also not detected in groundwater in three of four samples (i.e., GW-1, GW-3, and MW-1) on the eastern side of the Site along Sagamore Hill Drive. However, PCE was detected at GW-2 on the eastern side of the Site along Sagamore Hill Drive. CVOCs were detected in groundwater in three of five samples (i.e., GW-8, GW-10, and GW-11) above the AWQSGVs in the central portion of the Site. TCE at GW-8 was detected at the highest concentration northwest of the former plating area, which is a breakdown product of PCE. The other CVOCs detected in this area above the AWQSGVs consisted of PCE, 1,1-DCE, cis-1,2-DCE, and vinyl chloride.

- TCE was also detected at MW-2, which is above its AWQSGV, located on the south-central portion of the Site.

Additional Investigation
Roux Associates, Inc., September 29 through 30, 1999

An additional soil and groundwater investigation was performed at the Site by Roux Associates in 1999. The objective of the soil investigation was to further delineate the soil impacts previously identified around the former plating area, and at former Test Pits TP-9 and TP-10 located near the former USTs (Plate 2). Additionally, one soil boring was sampled and analyzed from the former plating area for confirmation of previous soil quality results (i.e., CVOCs in

soil). The objective of the groundwater investigation was to delineate the extent of on-site CVOCs in shallow groundwater (i.e., at the water table) near Geoprobe™ Boring GW-2 (along Sagamore Hill Drive), determine if there is an off-site source, and to evaluate natural attenuation as a potential remedial alternative. Additionally, the shallow groundwater quality at the presumed downgradient portion of the Site and within the abandoned leaching field was determined.

Eight soil borings (TP-9A through TP-9D and TP-10A through TP-10D) were sampled approximately 5-ft radially outward surrounding each of the former UST areas of concern; two soil borings (SB-2 and SB-3) were sampled on the north side of the former plating area; and one soil boring (SB-1) was sampled in the middle of the former plating area (Plate 2). These soil samples were collected using the Geoprobe™ method. Soil samples were collected at each soil boring from land surface to groundwater (i.e., approximately 8 ft to 10 ft bls). Each sample was inspected for contamination (e.g., staining and odors), and screened in the field for VOCs using a PID.

One soil sample from each soil boring was submitted to the laboratory for analysis. The actual sample selected for analysis was based on the sample that exhibited the highest degree of potential contamination (e.g., staining, odors). The samples collected around the former plating area were analyzed for Target Analyte List (TAL) metals using the USEPA Method 6000-7000 Series. The soil sample collected in the middle of the former plating area was analyzed for CVOCs using the USEPA Method 8260. Because the soil analytical results indicated that CVOCs were present in the middle of the former plating area, the samples north of the former plating area were also analyzed for CVOCs. The samples collected from the soil borings near Test Pits TP-9 and TP-10 were analyzed for TAL metals using the USEPA Method 6000-7000 Series and total organic carbon (TOC). The samples collected from the soil borings near Test Pit TP-9 were analyzed for SVOCs using the USEPA Method 8270.

Six groundwater samples were collected using the Geoprobe™ method. Please note that the groundwater samples collected using the Geoprobe™ method were from the top 2 ft of the water table. Four of the six samples (GW-12 through GW-15) were located around Geoprobe™

Boring GW-2, and at the approximate location of former Monitoring Well MW-6, where PCE was previously detected above the AWQSGVs (Plate 2). These samples were analyzed for CVOCs using USEPA Method 8260 and pertinent natural attenuation indicator parameters (i.e., TOC, dissolved iron and manganese, sulfate, nitrate, ethene, ethane and carbon dioxide). The samples were also analyzed for chloride and total dissolved solids (TDS) to determine the degree of saltwater intrusion in shallow groundwater at the Site. Additionally, dissolved oxygen, oxidation and reduction potential, pH, temperature, and specific conductivity were measured in the field at the time of sampling (see Appendix G).

The remaining two groundwater samples were collected from Geoprobe™ Boring TP-9D (i.e., downgradient property boundary), and Geoprobe™ Boring GW-16 located in the center of the former leaching field. The groundwater sample collected at TP-9D was analyzed for CVOCs using USEPA Method 8260. The groundwater sample collected from GW-16 located in the center of the former leaching field was analyzed for VOCs using the USEPA Method 8260, SVOCs using the USEPA Method 8270, and TAL metals using the USEPA Method 6000-7000 Series.

The key results of this investigation are summarized below.

- Chromium and iron were detected in soil at concentrations that exceed the NYSDEC RSCOs immediately north of the former plating area (Table 4). These metals were previously detected in soil at similar concentrations near the former plating area.

- TCE was the only CVOC detected in soil immediately above groundwater near the center of the former plating area, while CVOCs were not detected in soil immediately north of the former plating area (Table 5). This TCE concentration was also detected significantly below its NYSDEC RSCO of 700 micrograms per kilogram (µg/kg).

- Iron, zinc and chromium (one detection) were detected in soil at concentrations that exceed the NYSDEC RSCOs surrounding former Test Pits TP-9 and TP-10 (Table 4). These metals were detected at lower concentrations than those previously detected within the center of former Test Pits TP-9 and TP-10.

- SVOCs (benzo[a]pyrene, benzo[a]anthracene, benzo[b]fluoranthene, chrysene, and dibenzo[a,h]anthracene) were detected in soil at concentrations that exceed the NYSDEC RSCOs at former Test Pit TP-9 (Table 6).

- TCE was detected in groundwater at concentrations that exceed its AWQSGV immediately north of a manhole and Geoprobe™ Boring GW-2 (where PCE was

previously detected) along Sagamore Hill Drive. No CVOCs were detected in the two groundwater samples collected west and south of GW-2 (Table 3).

- PCE was detected in groundwater at a concentration that slightly exceeded its AWQSGV at former Test Pit TP-9 along a downgradient portion of the Site (Table 3).

- No VOCs were detected in groundwater that exceeded the AWQSGVs within the former leaching field (Table 3). No SVOCs were detected in groundwater within the former leaching field (Table 7). Twelve metals were detected in unfiltered groundwater at concentrations that exceed the AWQSGVs (Table 8). However, only three metals (iron, manganese, and sodium) were detected in a filtered groundwater sample that exceeded the AWQSGVs. Therefore, the presence of the other nine metals (which exceeded the AWQSGVs) in the unfiltered groundwater sample was a result of suspended sediment, and not representative of groundwater quality. Please note that the three metals (iron, manganese, and sodium) that exceeded the AWQSGVs in a filtered groundwater sample commonly occur in Long Island groundwater.

- Based on previous shallow groundwater data, the concentrations of degradation products of PCE and/or TCE, including 1,1-DCE, 1,2-DCE, and vinyl chloride indicate that the PCE and TCE are degrading as the result of naturally-occurring processes. Analytical results of the four groundwater samples collected specifically to evaluate the occurrence of natural attenuation of CVOCs in groundwater were not conclusive (Table 3). However, based on these limited results, natural attenuation is still considered a viable remediation alternative for the CVOCs in groundwater at the Site.

Building Department Review
Roux Associates, Inc., April 10, 2000

Roux Associates reviewed available Site drawings at the Incorporated Village of Manorhaven Building Department on April 10, 2000. The review indicated that drawings showing former floor drains, sewers, former drywells or other subsurface structures at the Site were not available.

2.4 Local Hydrogeology

In general, Long Island is underlain by stratified unconsolidated materials consisting of gravel, sand, silt and clay. These materials were deposited on a bedrock surface that generally slopes to the southeast, and consist of marine sediments (Upper Glacial Aquifer, Port Washington Confirming Unit, Port Washington Aquifer, Magothy, Raritan, and Lloyd formations) deposited on top of bedrock, which are overlain by glacial deposits (Upper Glacial formation). Collectively, these formations comprise the sole-source aquifer system of Long Island. Recent deposits overlie many areas of Long Island, and consist of sand and gravel material that form beaches and bars, and silty alluvium material deposited by streams.

Based on an investigation conducted by the U.S. Geological Survey (USGS, 1992), the Upper Glacial formation forms the present surface of the Manhasset Neck except in areas where recent deposits have accumulated in the bays, marshes, and streams. Near the Site, the Upper Glacial formation extends to a depth of approximately 75 ft to 80 ft bls. The Port Washington confining unit underlies the Upper Glacial and is represented by a change from sandy materials to clayey materials (Figure 2). The driller's log from a test well (No. 4678) drilled within approximately 100 ft east of the Site indicates that the change from sandy materials to clayey materials occurred at a depth of 52 ft bls.

The Site, which is located on Manhasset Island, is relatively flat. Research into the geomorphology of the Manhasset Island, indicated that it was once hilly and called Dodge Island (Kent, 2000). The hilly Dodge Island was eventually flattened due to sand mining operations, which began in the area in the 1870s. A historic map of the area in 1858 illustrates that the "first sand" was dug from Tom's Point (Appendix C). In addition, an aerial photograph from 1927 shows that the island was barren at that time, and appeared to have been mined down to approximately its present day elevation (Shodell, 1995).

The Site-specific geology has been characterized relative to the local geology presented above. The Site hydrogeology is presented in Section 4.3.

3.0 SITE INVESTIGATION SCOPE OF WORK

The following section presents the scope of work conducted at the Site. The scope of work includes tasks presented in the IWP (Roux Associates, 2000) and the SI SOW (Roux Associates, 2001).

The section is organized to present the scope of work for the entire Site investigation chronologically, starting with the IWP. As the field program progressed and new data became available, modifications were made to the documented Work Plans, where necessary, to achieve the project objectives. These modifications were discussed with and approved by the NYSDEC before implementation. The modifications are discussed in this section of the report.

3.1 Investigation Work Plan Scope of Work

The Work Plan objectives were to:

- complete the lateral and/or vertical soil quality delineation at the former plating area and at former UST Area TP-9;
- perform confirmation soil sampling and analysis in the former leaching field;
- characterize soil quality in uninvestigated areas inside of the former building footprint;
- determine whether there is an onsite source(s) of CVOCs in groundwater;
- determine the lateral and vertical extent of CVOCs in groundwater;
- determine the base neutral compound (BN) groundwater impacts, if any, at former UST Area at TP-9;
- verify the absence of a DNAPL;
- verify the direction of groundwater flow at the Site;
- determine the likelihood for human exposure to chemicals of potential concern identified in the soil and groundwater based on a future residential-use scenario; and
- develop remedial alternatives for soil and groundwater impacts identified at the Site including, evaluating whether phytoremediation and natural attenuation are viable remedial technologies for the removal and/or degradation of CVOCs in groundwater at the Site.

To achieve these objectives, the following tasks were completed.

- Soil Boring and Sampling Program
  - Former Plating Area
  - Former UST Area at TP-9
  - Former Leaching Field
  - Inside Former Building Footprint
  - Sitewide

- Groundwater Sampling and Monitoring Program
  - Monitoring Well Installation
  - DNAPL Analysis
  - Water-Level Measurements and Groundwater Sampling

A description of the above-mentioned tasks is provided below.

3.1.1 Soil Boring and Sampling Program

During October and November 2000, 21 soil borings (SB-4 through SB-24) were sampled continuously at 2-ft intervals from land surface to the depth where groundwater was encountered (approximately 8 ft to 10 ft bls). Four of the soil borings (SB-4 through SB-7) were sampled below the water table to determine the vertical extent of impacts within the former plating area. Additionally, four of the soil borings (SB-7, SB-12, SB-23 and SB-24) were sampled to evaluate the presence or absence of a DNAPL. The location of each soil boring is shown in Plate 2.

Soil samples were collected using the Geoprobe™ drilling method. Each sample was inspected for impacts (e.g., odors and staining), and was screened in the field for VOCs using a PID. The lithology of each sample was described, and recorded in the field notebook.

The soil sample identified with the highest degree of impacts (i.e., staining, odors, or PID readings) from each soil boring was selected for laboratory analysis. Where no impacts were identified, the sample at the 2-ft interval immediately above the water table was submitted for

laboratory analysis. One soil sample was selected for laboratory analysis from each vertical delineation soil boring based on the sample that exhibited no discernable impacts immediately below the deepest sample in that soil boring that exhibited impacts.

The specific locations of the soil boring and sampling, the number of soil borings at each location, and the method of sample analysis are provided below, and in Table 9.

3.1.1.1 Former Plating Area

One soil boring (SB-4) was sampled (20 ft to 22 ft bls) at former Test Pit TP-6A to determine the vertical extent of the black stained material (which was previously identified at 20 ft bls) identified during the February 8, 1999 CA Rich Phase I ESA. This sample was analyzed for TPH using the USEPA Method 8015.

One soil boring was sampled (20 ft to 22 ft bls) at approximately 5 ft southwest (SB-5) and 5 ft southeast (SB-6) of former Test Pit TP-6A to determine the lateral and vertical extent of TPH concentrations (which was previously identified at 20 ft bls) detected at former Test Pit TP-6A. These samples were analyzed for TPH using the USEPA Method 8015.

One soil boring (SB-7) was sampled (15 ft to 17 ft bls) at former Test Pit TP-6 to determine the vertical extent of the blue-gray/green stained material (which was previously identified at 15 ft bls) identified during the February 8, 1999 CA Rich Phase I ESA. This sample was analyzed for TAL metals plus cyanide using the USEPA Method 6000-7000 Series.

3.1.1.2 Former UST Area at TP-9

A total of three soil borings (SB-8 through SB-10) were sampled at former UST Area TP-9 to determine the lateral extent of BNs in this area. Each soil boring was sampled at approximately 5 ft further from the previous soil boring locations TP-9A, TP-9B, and TP-9D, located on the north (SB-8), east (SB-9), and west (SB-10) sides of former Test Pit TP-9, respectively. While there were no indications of BN impacts in any of the soil samples inspected (e.g., staining or odors), a confirmatory soil sample from each boring was collected and analyzed for BNs using the USEPA Method 8270 (NYSDEC Spill Technology and Remediation Series [STARS] parameter list only).

3.1.1.3 Former Leaching Field

One soil boring was sampled near the north (SB-11), central (SB-12), and south (SB-13) portions of the former leaching field to verify that no residual contamination from the former drywells remain. Each soil sample was analyzed for VOCs using the USEPA Method 8260, SVOCs using the USEPA Method 8270, and TAL metals plus cyanide using the USEPA Method 6000-7000 Series.

3.1.1.4 Inside Former Building Footprint

Nine soil borings (SB-14 through SB-22) were sampled within the former building footprint in areas not previously investigated and to determine whether a CVOC source(s) is (are) at the Site. Each sample was analyzed for VOCs using the USEPA Method 8260, SVOCs using the USEPA Method 8270, and TAL metals plus cyanide using the USEPA Method 6000-7000 Series.

3.1.1.5 Sitewide

Four soil borings (SB-7, SB-12, SB-23, and SB-24) were sampled to characterize soil quality and to verify the absence of DNAPL using a hydrophobic test (Plate 2). A description of the soil characterization for Soil Borings SB-7 and SB-12 is provided in Sections 3.1.1.1 and 3.1.1.3, respectively. The soil characterization at Soil Borings SB-23 and SB-24 were consistent with the characterization performed inside the former building footprint (see Section 3.1.1.4). The DNAPL analysis is described in Section 3.1.2.2.

Each soil boring was inspected for lithology and impacts (e.g., staining and odors). The samples were also screened in the field for VOCs using a PID.

Each composite sample was analyzed for CVOCs using the USEPA Method 8260 and TAL metals plus cyanide using the USEPA Method 6000-7000 Series.

3.1.2 Groundwater Sampling and Monitoring Program

The following sections present the tasks associated with groundwater sampling and monitoring program that were conducted in accordance with the IWP.

3.1.2.1 Monitoring Well Installation

During July 2000, two shallow (i.e., water table) monitoring wells (MW-27 through MW-28) were installed by Roux Associates as part of the Phytoremediation Pilot Study (see Section 3.5). During November 2000, six shallow monitoring wells (MW-21 through MW-26) were installed using a hollow-stem auger drilling rig. The locations of the monitoring wells are shown in Plate 2.

During the drilling of the monitoring well pilot boreholes, soil samples were collected continuously from land surface to the anticipated bottom depth of each well with a 2-inch diameter split-spoon sampler. Each soil sample was inspected for impacts (e.g., odors and staining), and was screened in the field for VOCs using a PID. The lithology of each sample was described, and recorded in the field notebook. Because none of the soil samples from the monitoring well boreholes indicated the presence of impacts (e.g., staining or odors), no samples were submitted to the laboratory for analysis. The lithology is presented in the well construction logs in Appendix D.

The monitoring wells were constructed of 2-inch diameter polyvinyl chloride (PVC) casing and 10 ft of well screen (10 slot). The wells were completed in accordance with the NYSDEC well installation procedures. After completion, the wells were developed to establish hydraulic connection with the aquifer and to remove fined-grained material to the extent possible. The well development procedures were performed in accordance with the NYSDEC guidelines. The well construction logs are provided in Appendix D.

Each monitoring well was surveyed for its horizontal coordinates relative to a state plane coordinate system (NAD27) and vertical coordinates relative to the National Geodetic Vertical Datum (NGVD) 1929 using a New York State-licensed surveyor. The surveyor's report is provided in Appendix E.

3.1.2.2 DNAPL Analysis

Two groundwater samples and one soil sample were collected from Soil Borings SB-7, SB-12, SB-23, and SB-24 for a DNAPL analysis. The groundwater samples were collected from the top 2 ft (i.e., top of the water table) and from the 2-ft interval immediately above a silt/clay layer

utilizing temporary wells installed through the hollow-stem augers. The soil sample was collected from the 2-ft interval immediately above the silt/clay layer utilizing a split spoon attached to the drill rig.

Based on a previously drilled boring at the Site, a silt/clay layer was expected to be present at a depth of approximately 32 ft bls. It was agreed with the NYSDEC that, if no silt/clay layer was encountered at 32 ft bls at the locations of the four borings mentioned above, a sample would be collected at 36 ft bls for a DNAPL analysis. Because no silt/clay layer was encountered at 32 ft bls, the groundwater samples were collected at 36 ft bls. Additionally, a soil sample from each boring from 34 ft to 36 ft bls was collected for a DNAPL analysis. Additional DNAPL analysis was performed immediately above a silt/clay layer encountered during subsequent investigation activities, and is described in Section 3.2.3.

To verify the absence of DNAPL, a hydrophobic test was performed on the groundwater and soil samples collected from Soil Borings SB-7, SB-12, SB-23, and SB-24. Sudan IV, a non-volatile hydrophobic dye, was used as a coloring agent to determine if a chlorinated hydrocarbon phase of a two-phased hydrocarbon and water mixture is present. A small amount of Sudan IV (powdered form) was added to the soil and groundwater samples and agitated for approximately 15 seconds. Following the agitation of the samples, the sample vials were allowed to sit undisturbed for approximately 15 minutes prior to a visual inspection for DNAPL. If a DNAPL was present in the soil or groundwater samples, the dye would become liquid in the hydrocarbon phase and "sink" to the bottom of the sample container.

Two control samples were also tested, which included:

- a potable water sample; and
- a potable water sample mixed with vegetable oil.

Additional to the hydrophobic testing, a product interface probe was placed into each temporary well to determine the presence of a DNAPL.

Each soil and groundwater sample was inspected for contamination (e.g., sheen and odors). The groundwater samples were also analyzed for CVOCs using the USEPA Method 8260.

3.1.2.3 Water-Level Measurements and Groundwater Sampling

Two rounds of water-level measurements (November 28, 2000 and December 4, 2000) were collected from the Site shallow wells (i.e., water table) using an electronic measuring scope during low and high tide to determine the direction of groundwater flow at the Site. One of the two water-level measurement rounds coincided with the groundwater sampling.

Prior to sampling, each shallow well (MW-1, MW-2, and MW-21 through MW-28) was purged into 55-gallon Department of Transportation (DOT)-approved drums using a low-flow pump. During purging, field parameters (i.e., turbidity, pH, specific conductivity, and temperature) were collected. Once purging was completed, each well was sampled using a new disposable bailer.

The well samples were analyzed for CVOCs using the USEPA Method 8260, natural attenuation parameters, TDS using the USEPA Method 160.1, and chloride using the USEPA Method 325.1 (Table 10). Monitoring Wells MW-23 and MW-24 were also analyzed for TAL metals (filtered and unfiltered) plus cyanide using the USEPA Method 6000-7000 series (Table 10).

Additionally, Monitoring Well MW-26 was sampled for BNs using the USEPA Method 8270 (NYSDEC STARS parameter list) to determine if the BNs in soil at former UST Area TP-9 have impacted groundwater.

3.2 Supplemental Investigation Scope of Work

Based on an evaluation of the hydrogeologic and the soil and groundwater analytical results of the IWP, supplemented with data generated during previous investigations conducted at the Site, a SI SOW was prepared. The objective of the SI was to identify the source(s) of the CVOCs previously detected in groundwater and to delineate (i.e., horizontally and vertically) the CVOCs that were previously detected in groundwater above the AWQSGVs.

The SI SOW included the following tasks:

- Geophysical Survey;

- Soil Boring and Sampling;
- Groundwater Screening; and
- Monitoring Well Installation and Groundwater Sampling.

Two tasks were added to the SI SOW during its implementation that included the excavation of test pits/trenches coupled with sampling potentially impacted media, and a soil gas survey.

The SI SOW was conducted in a manner consistent with the September 26, 2000 IWP procedures. A description of each SI SOW task is provided below.

3.2.1 Geophysical Survey

A geophysical survey was performed within the former building footprint to determine whether any subsurface structures (e.g., sumps and piping) were present. The results of the geophysical survey were reviewed in an attempt to identify a potential source of the CVOCs detected in groundwater. To supplement the geophysical survey, a review of the local Building Departments' files was conducted. As stated in Section 2.3, there were no building drawings or other information regarding subsurface structures in the file.

Additionally, the geophysical survey was used to determine the lithologic layers beneath the Site. The purpose of this work was to determine the depth of a silt/clay layer so that a maximum depth for the collection of groundwater samples could be estimated (see Section 3.2.3 for further details).

A multi-technique geophysical survey was conducted at the Site on February 6 and 7, 2001, by Enviroscan, Inc. (Enviroscan) of Lancaster, Pennsylvania. The survey included metallic target mapping using an electromagnetic detection (EM) instrument, and lithologic mapping using seismic reflection and seismic refraction techniques. Please note that other geophysical techniques (e.g., ground penetrating radar), to identify non-metallic subsurface structures, could not be performed due to signal interferences from the significant amount of metallic objects present within the top several feet of soil throughout the Site.

A summary of the survey results is provided below and a complete description of the methodology and principles of the seismic survey conducted by Enviroscan is provided in Appendix F.

Electromagnetic Mapping

An EM-61 metal detector manufactured by Geonics, Inc., was used to locate buried metallic objects. The metal detector sends electromagnetic energy through the ground surface to a maximum depth of 12 ft bls. The measurement stations where instrument responses were recorded are in shown in Figure 1 of Appendix F.

The resultant EM data were contoured by Enviroscan using the statistical kriging routine in SURFER™. The response data, given as color contours are shown in Figure 2 of Appendix F. Areas of significant metallic response are indicated by red contour intervals. The contoured data indicated 12 metallic anomalies, which were the focus of test pits/trenches that were subsequently excavated (see Section 3.2.5).

Seismic Refraction

To identify the subsurface geology to a depth of approximately 20 ft bls, a seismic refraction survey was performed. The survey is performed by emitting sound waves into the subsurface, and measuring the velocity of the waves as they move through the subsurface. The velocity of the sound waves then can be used, based on their differences through the subsurface, to determine the surfaces of different geologic layers. The seismic refraction survey locations are shown in Figure 1 of Appendix F.

The seismic refraction survey data were interpreted by Enviroscan, which indicated the presence of two geologic strata surfaces; a dry sandy material underlain by saturated sandy material. The first surface represents the surface topography and the second represents the top of the water table, which occurred at approximately 8 ft to 10 ft bls.

Seismic Reflection

To identify the subsurface geology at greater depths (to approximately 150 ft bls), a seismic reflection survey was performed. The scientific principles of seismic reflection are similar to those of seismic refraction, where the velocity of sound waves is measured to identify the subsurface geology. The seismic reflection survey locations are shown in Figure 1 of Appendix F.

The seismic reflection data were interpreted by Enviroscan, which indicated three geologic strata surfaces. The first geologic surface occurs at a depth that ranges from approximately 35 ft to 80 ft bls. The second occurs at a depth that ranges from 130 ft to 195 ft bls, while a third was identified at approximately 320 ft bls.

3.2.2 Soil Boring and Sampling

During March 2001, 20 soil borings (SB-31 through SB-50) were drilled and sampled continuously at 2-ft intervals from land surface to the water table (i.e., approximately 8 ft to 10 ft bls) using a hollow-stem auger rig in an attempt to identify a source of CVOCs in groundwater (Table 9). The locations of the soil borings are shown in Plate 2.

The soil samples were inspected for evidence of impacts (e.g., staining and odors), and screened in the field for VOCs using a PID. The SI SOW required that one soil sample from Soil Borings SB-31 through SB-34 and SB-39 through SB-50 would be submitted to the laboratory for analysis if evidence of impacts (e.g., staining, odors, or elevated PID readings) were identified. With the exception of Soil Boring SB-47, no evidence of impacts in these soil borings were identified, therefore, no samples were submitted for laboratory analysis. Black staining was observed in the sample collected from Soil Boring SB-47. The soil sample collected from SB-47 was analyzed for VOCs using the USEPA Method 8260 and SVOCs using the USEPA Method 8270.

The SI SOW also required that one soil sample from Soil Borings SB-35 through SB-38 would be submitted to the laboratory for analysis from a depth interval where evidence of impacts (e.g., staining, odors, or elevated PID readings) were identified. Where no discernible impacts were identified in these soil borings, then the 2-ft sample immediately above the water table was

submitted to the laboratory for analysis. Based on identification of impacts in the 2 ft to 4 ft bls interval at SB-35, a sample was collected from this depth interval and submitted to the laboratory for analysis. Because no impacts were evident in Soil Borings SB-36 through SB-38, samples were collected from the 2-ft interval above the water table in each of these borings, and were submitted to the laboratory for analysis. The soil samples were analyzed for CVOCs using the USEPA Method 8260.

Additional soil borings (SB-51 through SB-73) were drilled between February and April 2001 to further characterize the soil quality at the Site or to determine the subsurface geology (Table 9). However, soil samples were only collected for laboratory analysis from Soil Borings SB-67, SB-69, SB-71, SB-72, and SB-73 because evidence of impacts were identified at these five locations. The selected soil samples from each of these borings were analyzed for VOCs using the USEPA Method 8260. In addition, selected soil samples from SB-71 through SB-73 were analyzed for SVOCs using the USEPA Method 8270 and TAL metals using the USEPA Method 6000-7000 Series.

3.2.3 Groundwater Screening

Between February and April 2001, groundwater samples were collected from Water-Quality Borings SB-31 through SB-50 and SB-53 through SB-76 using the Hydropunch™ method (Plate 2). Borings SB-51 and SB-52 were drilled for geologic logging purposes, and no water quality samples were collected. Water Quality Borings SB-71 and SB-72 were drilled and sampled to evaluate the potential impacts to groundwater from leaching structures that were located at the north end of the Site. Water Quality Boring SB-73 was drilled and sampled at Test Pit TP-29 to characterize the groundwater quality where a sheen was observed. Water Quality Borings SB-74, SB-75, and SB-76 were drilled and sampled in the area adjacent to and downgradient where elemental mercury was identified in a manhole to evaluate the potential for impact to groundwater. Although Water Quality Borings SB-75 and SB-76 were drilled and sampled, because no mercury was detected above the AWQSGVs in the sample from SB-74 (adjacent to the downgradient side of the manhole), the sample from SB-75 and SB-76 were not analyzed. A summary of the boring designation and analysis performed is presented in Table 10.

The Hydropunch™ method permits the collection of discrete groundwater samples so that the horizontal and vertical extent of the CVOCs in groundwater could be determined. The groundwater samples were analyzed onsite using a mobile laboratory provided by BL Analytical, Inc. Meridan, Connecticut.

It is important to note that this task was originally scoped to determine the extent of CVOCs. As non-chlorinated VOCs were detected in other samples collected at the Site (e.g., subsurface building structure material), the VOC parameter list was expanded to include the entire VOC list using the USEPA Method 8260.

Additionally, the groundwater samples collected from Water Quality Borings SB-31, SB-32, SB-40, SB-42, SB-45, and SB-46 were analyzed for chromium (filtered and unfiltered) using the USEPA Method 6000-7000 Series, and from Water Quality Borings SB-31, SB-32, SB-35, SB-38 through SB-41, SB-45, and SB-47 for chloride using the USEPA Method 325.2 and TDS using the USEPA Method 160.1. These samples were analyzed by a stationary laboratory (Severn Trent Laboratories, Inc., Shelton, Connecticut).

The Hydropunch™ groundwater samples were collected using a 2-ft long temporary well screen advanced beyond the end of the augers. The groundwater samples were collected at approximately 10-ft intervals until a silt/clay layer was encountered or to a depth where the groundwater quality indicated that VOCs were either not detected or detected below the AWQSGVs. This sampling scheme was implemented for Water Quality Borings SB-31 through SB-50. Because a silt/clay layer was encountered at approximately 50 ft bls, these borings were terminated. Since the CVOC concentrations at 50 ft bls were detected above the AWQSGVs at many locations, Water Quality Borings SB-53 through SB-70 were sampled to a depth where the VOC concentrations were below the AWQSGVs. Additionally, Water Quality Borings SB-32, SB-40, SB-41, SB-44, and SB-45 were sampled beyond 50 ft bls (where the initial boring was terminated) to determine the vertical extent of the VOCs that exceed the AWQSGVs.

A DNAPL analysis was performed at Water Quality Borings SB-38, SB-40, SB-42, and SB-45 to further verify the absence of DNAPL at the Site. One groundwater and soil sample was

collected at the 2-ft interval (48 ft to 50 ft bls) immediately above a silt/clay layer encountered at approximately 50 ft bls. Details of the DNAPL analysis procedures are provided in Section 3.1.2.2.

3.2.4 Monitoring Well Installation and Groundwater Sampling

In June 2001, twenty-three monitoring wells were installed using a hollow-stem auger drilling rig in accordance with the SI SOW. These wells were constructed to create shallow (i.e., the screen interval straddles the water table), intermediate (i.e., the screen interval is from approximately 30 ft to 50 ft bls on top of the silt/clay layer), and deep (i.e., the screen interval is from approximately 105 ft to 125 ft bls) nested wells at seven Site locations (MW-2, MW-26, MW-29, MW-31, MW-33, MW-34, and MW-35), and to construct shallow and intermediate nested wells at two Site locations (MW-23 and MW-30). Monitoring Well MW-32 was constructed as a single shallow well. The locations of the wells were selected to confirm the Geoprobe™/Hydropunch™ groundwater data, to delineate concentrations of VOCs previously detected in groundwater above the AWQSGVs, to determine the horizontal and vertical direction of groundwater flow, and to determine whether there is an onsite source(s) of VOCs. The locations of the monitoring wells are shown in Plate 2.

During the drilling of the monitoring well pilot boreholes, split-spoon soil samples were collected continuously from land surface to the top of the water table, and every five feet to the bottom depth of each of the deep borings. Each soil sample was inspected for impacts (e.g., odors and staining), and was screened in the field for VOCs using a PID. The lithology of each sample was described, and recorded in the field notebook.

The monitoring wells were constructed of 2-inch diameter PVC well casing and screen. The monitoring wells were installed following the NYSDEC well installation procedures. The shallow wells were installed with a 10-ft screen (consistent with existing shallow wells at the Site), except for Monitoring Well MW-32S where a 20 ft well screen was installed. A 20 ft well screen was installed at Monitoring Well MW-32 based on the groundwater quality screening data obtained by the Hydropunch™. The intermediate and deep wells were installed with 20 ft well screens.

After the installation of each well was complete, the well was immediately developed to provide communication between the well screen and the aquifer. After the development of each well was complete, the well was permitted to stay undisturbed for one week prior to groundwater sampling. After the one week waiting time, groundwater sampling was performed. Please note that the groundwater samples were collected over a six-week period between June 13, 2001 and July 26, 2001. During this time, the work activities included the installation of wells, well development, and groundwater sampling; all work activities were occurring at the same time. Please note that when a well was sampled, another well in the same cluster (if present), was not being installed or if already installed, that well was not being developed.

Prior to sampling, each well was purged a minimum of three to five well volumes with a low-flow submersible pump. Groundwater sampling logs are provided in Appendix G. The well samples were collected using new disposable polyethylene bailers and rope, and placed into the appropriate sample bottles provided by the laboratory. The use of polyethylene bailers is a slight deviation from the project Standard Operating Procedures (SOPs), which proposed the use of Teflon™ bailers. This modification to the SOP was verbally approved by the NYSDEC prior to implementation.

Each groundwater sample was analyzed for VOCs using the USEPA Method 8260 plus tentatively identified compounds (TICs), SVOCs using the USEPA Method 8270 plus TICs, TAL metals (filtered and unfiltered) plus hexavalent chromium and cyanide using the USEPA Method 6000-7000 Series, and PCBs using the USEPA Method 8082.

One round of water-level measurements was performed during low and high tide on July 20, 2001 to evaluate the horizontal and vertical groundwater flow directions. A second water-level measurement round was performed during low and high tide on August 1, 2001 to confirm the results of the first round.

Each monitoring well was surveyed for its horizontal coordinates relative to a state plane coordinate system (NAD27) and vertical coordinates relative to the NGVD 1929 using a New York State-licensed surveyor. The surveyor's report is provided in Appendix E.

3.2.5 Test Pits/Trenches

Twenty-five test pits/trenches (TP-12 through TP-37) were excavated using an excavator from land surface to the water table (i.e., approximately 8 ft to 10 ft bls) at the Site (Plate 3). The test pits were excavated to:

- determine the nature of the 12 metallic anomalies detected during the geophysical survey;
- characterize the soil above the water table in two areas (near Soil Borings SB-34 and SB-44) where VOCs were detected in the groundwater at concentrations higher than in other areas of the Site; and
- verify subsurface building structures in areas of the Site that were believed to have been present based on a 1945 map and 1960's brochure of the Site and an interview with a former Thypin Steel employee.

Based on the test pit/trench visual inspections, samples of subsurface building structure material (solid and liquid) at selected test pits/trenches were collected and analyzed for VOCs, SVOCs, BNs, metals, TPH, and/or PCBs to confirm the presence or absence of contaminant source areas. Samples were selected for analysis based on field identified impacts. If no impacts were identified, then a sample was not collected for analysis.

3.2.6 Soil Gas Survey

As discussed in a June 1, 2001 meeting between the NYSDEC, Roux Associates and CA Rich, the NYSDEC recommended that a soil gas survey be conducted as part of the SI for the Site. The objective of the soil gas survey was to determine whether VOCs at the locations where the highest total VOC concentrations were previously detected in groundwater at the water table are exhibiting a vertical migration towards the surface (i.e., off-gassing). The results were included in the risk assessment to determine if the soil gas (if present) poses a potential risk to human health based on the intended residential future use of the Site (see Section 8.0).

Between July 23, 2001 and July 26, 2001, the soil gas survey was performed at and surrounding four water quality borings (Plate 4). These borings include SB-7, SB-34, and SB-59 in the west-central portion of the Site, and boring SB-24 in the south-central portion of the Site along Tom's Point Lane. The soil gas sampling points surrounding these borings were performed on

an approximate 20-foot spacing. As shown in Plate 4, a total of 20 locations were sampled. Two discrete samples were collected for analysis at each sampling location; one sample at 3 ft bls; and the second sample at 6 ft bls yielding a total of 40 soil gas samples. In addition, field blanks consisting of zero gas were collected for laboratory analysis.

The samples were collected using the Geoprobe™ method. A 1.5-inch diameter discrete sampler was advanced to the required sampling depth. Polyethylene sample tubing was placed through the rods and into the discrete sampler. The top of the sampler was capped to prevent influx of ambient air while sampling. Prior to collecting the sample for analysis, each dedicated sample tube was purged to ensure that a representative sample is collected. A low flow air-sampling pump was used to extract the soil gas at each discrete sampling interval at a rate of approximately 100 milliliters per minute. The sample was then collected through the pump exhaust vent directly into a new one-liter Tedlar® bag.

The soil gas samples were submitted to Severn Trent Laboratories (STL), and immediately analyzed for VOCs using the USEPA Method TO1/TO2.

3.3 Risk Assessment

Soil quality data from the 0 to 2 ft and 4 ft to 6 ft depth intervals throughout the Site were generated, and used along with previous soil quality data to perform a risk assessment (Appendix H). The risk assessment will determine whether the soil quality at the Site poses a potential risk to human health based on the future intended residential use.

A total of 30 soil borings (SB-25A-F through SB-30A-F) were drilled and sampled using the Geoprobe™ method. The locations of these soil borings are shown in Plate 5. As shown in Plate 5, the soil borings were located at approximately 100 ft spacing from each other. Six composite samples were collected from the 30 borings at the depth intervals mentioned above. Each composite sample was comprised of samples from six soil borings. For example, composite sample SB-25 (0 to 2 ft) was comprised of samples collected from the 0 to 2 ft depth interval at Soil Borings SB-25A, SB-25B, SB-25C, SB-25D, SB-25E, and SB-25F. The same composite sampling scheme was preformed for the 4 ft to 6 ft depth interval.

The New York State Department of Health (NYSDOH) requested that additional soil samples be collected for the Risk Assessment (Appendix A). A total of 12 soil samples (Surface #1 through Surface #12) were collected from the 0 to 2 inch depth interval at the locations shown in Plate 5. The inspection and soil sampling procedures performed during other SI activities were implemented for these samples. Each soil sample was analyzed for VOCs using the USEPA Method 8260 and TAL metals plus cyanide using the USEPA Method 6000-7000 Series.

Additionally, Roux Associates collected soil samples from the 0 to 2 ft depth interval from sample locations Surface # 1, 3, 4, 5, 8, 9, 10, 11, and 12. These samples were analyzed for BNs using the USEPA Method 8270. These samples were analyzed for BNs because the original scope did not include a BN analysis, and since the future intended Site use is residential, BNs were necessary to be evaluated in the Risk Assessment.

3.4 Data Usability

A Data Usability Summary Report (DUSR) was prepared by Data Validation Services, North Creek, New York, in accordance with the September 1997 NYSDEC Guidance for the Development of DUSRs. The DUSR includes a data review of the raw data and the quality control parameters. The quality control parameters include custody documentation, holding times, surrogate and matrix spike recoveries, duplicate correlation, calibration standard/blank performance, instrument performance, blank contamination, matrix interference, and method compliance. Additionally, the precision, accuracy and completeness of the data were evaluated.

The DUSR is provided in Appendix I.

3.5 Phytoremediation Pilot Study

A summary of the Phytoremediation Pilot Study is provided in Appendix J.

4.0 RESULTS OF THE SITE INVESTIGATION

The purpose of this section is to provide the results of the IWP and SI, which includes a discussion of the media characterization (i.e., soil, subsurface building structure material, groundwater, and soil gas) and significance of the impacts identified during the Site Investigation relative to the appropriate regulatory standards, criteria, and guidances. A discussion regarding the characterization extent (i.e., horizontal and vertical) is provided as follows:

- Soil – The soil was characterized throughout the Site from land surface to the water table (i.e., approximately 8 ft to 10 ft bls), and into groundwater down to an approximate depth of 22 ft bls at areas of the Site, which were previously identified with impacts (e.g., staining);

- Subsurface Building Structure Material – This material, which includes solids and liquids (but not soil or groundwater), was characterized at the locations of subsurface structures where field impacts were identified or by the nature of a structure (e.g., leaching structure). The characterization varied in depth from approximately 3 ft bls to the top of the water table (i.e., approximately 10 ft bls);

- Groundwater – The groundwater was characterized throughout the Site from the water table to a depth where concentrations of constituents were either not detected or detected below the appropriate SCGs (to a maximum of 125 ft bls); and

- Soil Gas – The soil gas was characterized at the Site locations where the four highest concentrations of VOCs were previously detected in groundwater at the water table. The soil gas delineation samples were located surrounding the above locations at approximately 20 ft radially away. At each location, the soil gas was characterized above the water table at 6 ft bls and at 3 ft bls.

4.1 Identification of Standards, Criteria, and Guidelines

This section provides a description of the regulatory SCGs that were used to evaluate the significance (i.e., whether or not a detected constituent would be considered an impact) of the sample analytical results.

4.1.1 Soil

SCGs used to evaluate the soil data are the NYSDEC RSCOs. The RSCOs are described in the Technical and Administrative Guidance Memorandum (TAGM) No. 4046, Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 1994, which was amended in a memorandum dated December 20, 2000 to include compounds that were identified in the NYSDEC STARS Memo #1. The RSCOs are provided in the soil analytical data tables.

4.1.2 Subsurface Building Structure Materials

SCGs used to evaluate the subsurface building structure solid material data are the NYSDEC RSCOs. Please note that the RSCOs are typically used to evaluate soil data, and that there are no SCGs for subsurface building structure material that will be left in place. However, as a conservative approach to evaluate this material because the intended future use of the Site is residential, the RSCOs were used.

SCGs used to evaluate the subsurface building structure liquid material data are the NYSDEC Technical and Operational Guidance Series (TOGS) AWQSGVs (see Section 4.1.3). Please note that the AWQSGVs are typically used to evaluate groundwater data, and that there are no SCGs for subsurface building structure material. However, as a conservative approach to evaluate this material because the intended future use of the Site is residential, the AWQSGVs were used.

4.1.3 Groundwater

SCGs used to evaluate the groundwater data are the NYSDEC AWQSGVs. The AWQSGVs are described in the Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values dated October 22, 1993, revised in June 1998 and April 2000. The AWQSGVs provide ambient concentrations developed to protect New York State groundwater and refer to their best-classified usage (GA – Source of Drinking Water). The AWQSGVs are provided in the groundwater analytical data tables.

4.1.4 Soil Gas

There are no local, state or federal regulatory SCGs used to evaluate soil gas data. The soil gas data will be described, but its significance relative to the intended future residential Site use is addressed in Section 8.0 (Risk Assessment).

4.2 Data Usability Summary Report

A DUSR was performed on the soil, subsurface building structure material (i.e., solid and liquid), and groundwater analytical data during the Site Investigation. The DUSR was performed by Data Validation Services, North Creek, New York. The DUSR was performed in accordance with the USEPA Region II validation standard operating procedures, the USEPA

National Functional Guidelines for Data Review, and the NYSDEC DUSR guidelines (revised 1997).

The results of the DUSR indicate that most analyte values and reporting limits were usable as reported by the laboratory, with edits or qualifications as estimated due to typical matrix effects or processing. The DUSR is provided in Appendix I.

4.3 Site Hydrogeology

The following sections present a discussion of the geologic and groundwater flow conditions at the Site.

4.3.1 Geology

Soil samples were collected from soil borings and from monitoring well pilot boreholes to characterize the subsurface geology throughout the Site during the IWP and SI. Each sample was described and recorded in a field notebook. The field descriptions were later transferred to soil boring logs, which are included in Appendix D.

Three distinct geologic strata were encountered from land surface to a depth of 125 ft bls at the Site. These strata include:

- disturbed, brown sand strata (i.e., fill material), which is present throughout the Site with a thickness that ranges from approximately 0.5 ft to 8 ft;
- orange/tan sand strata, which underlies the fill material to a depth of approximately 50 ft to 60 ft bls. Groundwater occurs near the top of the sand strata at a depth ranging from 8 ft and 12 ft bls as measured in monitoring wells at the Site (Table 11); and
- gray silt/clay strata, which was measured to a depth of 125 ft bls, and extends to approximately 240 ft bls based on regional data (USGS, 1992).

These strata are interpreted to include the Upper Glacial formation (sand strata) and the Port Washington Confining Unit (silt/clay strata). Based on regional geologic information available for the Manorhaven area, other geologic units exist at depths well below 125 ft bls, but were not encountered during the drilling program because the deepest boreholes were terminated at 125 ft bls. These deeper geologic strata include the Port Washington aquifer, which is

approximately 100 ft thick, underlain by bedrock. Three generalized hydrogeologic cross-sections (A-A' and B-B') were prepared to illustrate the subsurface hydrogeology at the Site (Plates 6 and 7). The line of cross-section is shown in each respective cross-section plate.

The fill materials are characterized as predominately fine to coarse sand, with varying amounts of cinders, brick, concrete, asphalt, roofing materials, wood, metal debris, steel and clay piping, and other assorted building structure materials.

The sand strata are characterized by their orange-brown color, fine to coarse grain size, with varying amounts of silt and some mica. A discontinuous layer of medium to coarse-grained sand with little gravel is present near the top of this stratum. This layer is present along the east-central portion of the Site from the center of the Site thickening towards the south (Plates 6 and 7). These strata are interpreted to be part of the Upper Glacial formation as described in Section 2.3.

The silt strata are characterized by their gray color, with some minor amounts of clay, fine sand and mica. These strata are interpreted to be part of the Port Washington Confining Unit as described in Section 2.3.

4.3.2 Groundwater Flow

On July 20, 2001, two synoptic rounds of water-level measurements were made in the monitoring wells at the Site (Table 11). To evaluate the tidal effects on groundwater flow at the Site, one round was collected during low tide and one round was collected during high tide. The groundwater elevation data were used to construct water-level elevation contour maps of the shallow and deep monitoring well zones during each of the tidal cycles (Plates 8, 9, 10, and 11).

The groundwater flow direction in the shallow zone (i.e., shallow wells are screened from approximately 8 ft to 18 ft bls straddling the water table; except at MW-32 where the screen interval is from 8 ft to 28 ft bls) between high and low tides is generally consistent, but with minor deviations. During low tide, flow on the east side of the Site flows generally to the south (Plate 8); on the west side, flow is generally towards the south-southwest. During high tide, the flow on the east side of the Site is relatively consistent with low tide (Plate 9); on the west side of

the Site the flow is generally towards the southwest in the northern and central portions of the Site and bends slightly more to the south near the southern portion of the Site.

The groundwater flow direction in the intermediate zone (i.e., intermediate wells are screened from approximately 30 ft to 50 ft bls) between high and low tides is generally consistent with the estimated groundwater flow direction for the shallow zone (see Plates 8 and 9).

The groundwater flow direction in the deep zone (i.e., deep wells screened approximately 105 ft to 125 ft bls) between high and low tides is generally consistent across the Site (Plates 10 and 11). Flow on the east side of the Site flows generally to the southwest; flow on the west side of the Site bends in a westerly direction.

A second synoptic round (August 1, 2001) of water-level measurements was made in the 33 Site wells. The results of the second round of water-level measurements confirmed the July 20, 2001 groundwater flow directions for the shallow, intermediate, and deep zones. Additionally, previous water-level measurements (November/December 2000) for the shallow zone indicated a consistent groundwater flow pattern as the July 20, 2001 and August 1, 2001 rounds.

The groundwater elevation data were also used to characterize the vertical component of groundwater flow at the Site between the two hydrogeological units (i.e., Upper Glacial Aquifer and Port Washington Confining Unit). Based on the groundwater elevations measured in the nested wells (i.e., shallow and deep), there is a small measurable downward potential for flow between the shallow and deep zones at the Site. Although there is a small measurable downward potential for vertical flow between the shallow and deep zones, the predominant groundwater flow direction at the Site is horizontal as illustrated on Plates 8 through 11. Although not encountered during the drilling program, the Port Washington aquifer is a sand deposit approximately 100 ft thick, which underlies the Port Washington Confining Unit at a depth up to approximately 240 ft bls beneath the Site (USGS, 1992). The Port Washington Confining Unit is approximately 130 feet thick beneath the Site, and has been interpreted as a continuous hydrogeologic unit that extends beneath the Site and Manhassett Neck (USGS, 1992). The characteristically low permeability of this unit and its thickness (130 feet) provides a high degree

of protection from surface impacts by limiting the volume of groundwater that recharges the Port Washington Aquifer from the shallow zone.

4.3.3 Well Survey

The public supply wells within an approximate radius of two miles from the Site are shown in Figure 3. Twenty public supply wells were identified within the above radius from the Site, where nine of the twenty were identified in the Port Washington Water District. According to information obtained, these nine wells are screened in the Port Washington Aquifer, the Magothy Aquifer (generally located in the eastern portion of Manhasset Neck), and the Upper Glacial Aquifer.

Based on the groundwater elevations measured at the Site, the predominant flow direction at the Site is horizontal in a south to southwest direction towards Manhasset Bay with a small measurable downward flow potential between the Upper Glacial Aquifer and the Port Washington Confining Unit. Based on the horizontal flow direction at the Site, the groundwater impacts at the Site should not pose a threat to the water quality of the public supply wells (within an approximate 2-mile radius from the Site) because the ultimate discharge point for the groundwater at the Site is Manhasset Bay, and not towards the public supply wells.

4.4 Soil Quality

The following sections present the field inspection (see Appendix D – Soil Boring Logs) and laboratory analytical results of the soil samples collected at the Site during the Roux Associates 1999 additional investigation, the IWP, and the SI SOW. Please note that the discussion of the analytical results is focused on the comparison between the concentrations of the detected constituents and the appropriate SCGs (i.e., whether an exceedance has occurred). The results are presented by area (as defined in the IWP or SI), and by analyte for each area.

A brief summary of the sampling rationale for each area is provided below. Table 9 provides a description of the boring/sampling location, rationale, total depth of soil boring, sample depth interval for analysis, sample laboratory analysis, and drilling method for each boring. The sample locations are shown in Plates 2 and 3.

The soil analytical results were evaluated in the risk assessment to determine if the results pose a potential risk to human health based on the intended future residential use of the Site (see Section 7.0).

4.4.1 Former Plating Area

Soil Borings SB-1 through SB-3 were sampled at and north of the former plating area to determine if a source of the previously identified groundwater impacts was present and to delineate the metals-related soil impacts. Although the analytical results of SB-1, SB-2, and SB-3 were discussed in Section 2.3, the results are incorporated into the discussions of the current investigation results provided below.

Soil Borings SB-4 through SB-6 were sampled to confirm the presence of black stained soil previously identified at former Test Pit TP-6A (south side of the former plating area) and to determine its vertical extent.

Soil Boring SB-7 was sampled to delineate the vertical extent of blue-gray and green stained soil previously identified at the former plating area. In addition, SB-7 was sampled to verify the absence of DNAPL at this location.

The soil samples were analyzed for parameters that include one or more of the following: VOCs, TAL metals, and TPH.

4.4.1.1 Field Inspection Results

The results of the field inspection indicate that no staining or odors were present in the soil samples collected at or north of the former plating area. However, the PID readings, screening of VOC vapors, generally ranged from 5 ppm to 80 ppm.

4.4.1.2 Analytical Results

A description of the analytical results is provided below.

VOCs

One VOC (TCE at Soil Boring SB-1, 8 ft to 10 ft bls) was detected in soil at the former plating area (Table 5). This VOC was not detected at a concentration that exceeds the NYSDEC RSCOs (Table 5).

TAL Metals

Thirteen TAL metals were detected in soil at and north of the former plating area (Table 4). Four of the 13 metals (beryllium, chromium, iron, and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 4). However, the reported concentrations of these four metals were detected below their respective Eastern USA Background Concentration (Table 4).

TPH

TPH was not detected in the soil samples collected from Soil Borings SB-4 through SB-6 at the former plating area (Table 12).

DNAPL

The results of the hydrophobic dye test indicate that DNAPL was not present beneath the former plating area at Soil Boring SB-7 (34 ft to 36 ft bls).

4.4.2 Inside Former Building Footprint (Other Than the Former Plating Area)

Soil Borings SB-14 through SB-22 were sampled within the footprint of the former building to characterize the soil quality and to locate a source of the previously identified groundwater impacts (i.e., CVOCs). The soil samples were analyzed for VOCs, SVOCs, CN, and TAL metals.

4.4.2.1 Field Inspection Results

The field inspection results indicate that no odors were present in the soil samples collected from within the former building footprint. Staining was observed in the 0 to 2 ft bls sample at Soil Borings SB-15, SB-17, and SB-19. The PID readings ranged from not detected to 90 ppm.

4.4.2.2 Analytical Results

A description of the analytical results is provided below.

VOCs

Six VOCs were detected in soil within the former building footprint (Table 5). These six VOCs were not detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 5).

SVOCs

Twenty-three SVOCs were detected in soil within of the former building footprint (Table 6). Eight of the 23 SVOCs (benzo(a)anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, indeno[1,2,3-cd]pyrene, and nitrobenzene) were detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 6).

At three soil boring locations (SB-15, SB-17, and SB-19), the SVOC exceedances occurred within the top 2 ft bls. Please note that fill material is present in the top 2 ft at the locations of Soil Borings SB-15 and SB-17. Soil Borings SB-15 and SB-17 are located within the footprint of former Building 2 in the northern portion of the Site, while Soil Boring SB-19 is located within the footprint of former Building 6 in the central portion of the Site (Plate 2).

SVOCs were also detected in soil at concentrations that exceed the NYSDEC RSCOs at a depth of 4 ft to 6 ft bls in Soil Boring SB-20, which is located at the western-most end of former Building 1, and at a depth of 8 ft to 10 ft bls in Soil Boring SB-21, which is located in the central portion of former Building 1 (Plate 2).

CN

CN was not detected in any of the soil samples collected from within the former building footprint (Table 4).

TAL Metals

Twenty-one TAL metals were detected in soil within the former building footprint (Table 4). Six of the 21 metals (beryllium, chromium, iron, nickel, selenium, and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 4).

Beryllium exceeded its NYSDEC RSCO of 0.16 mg/kg in eight of the nine borings sampled. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration of 1.75 mg/kg.

Chromium exceeded its NYSDEC RSCO of 10 mg/kg in six of the nine borings sampled. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration of 40 mg/kg.

Iron exceeded its NYSDEC RSCO of 2,000 mg/kg in all nine soil borings sampled. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration up to 550,000 mg/kg.

Nickel exceeded its NYSDEC RSCO of 13 mg/kg in three of the nine soil borings sampled. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration of 25 mg/kg.

Selenium exceeded its NYSDEC RSCO of 2 mg/kg in one of the nine soil borings sampled. However, the reported concentration of this metal was detected below its Eastern USA Background Concentration of 3.9 mg/kg.

Zinc exceeded its NYSDEC RSCO of 20 mg/kg in six of the nine borings sampled. Zinc also exceeded its Eastern USA Background Concentration of 50 mg/kg in three of the six soil borings (SB-15 [0 to 2 ft bls], SB-17 [0 to 2 ft bls], and SB-20 [4 ft to 6 ft bls]) that exceeded its NYSDEC RSCO. Soil Borings SB-15 and SB-17 are located within the footprint of former Building 2 in the northern portion of the Site. Soil Boring SB-20 is located in the western-most portion of former Building 1 (Plate 2).

4.4.3 Former UST Area at TP-9

Soil Borings TP-9A, TP-9B, TP-9C, TP-9D, SB-8, SB-9, and SB-10 were sampled at the former UST Area at Test Pit TP-9 to delineate the horizontal and vertical extent (to the water table) of previously identified soil impacts (i.e., staining and a detection of one BN at a concentration that

exceeded its NYSDEC RSCO) from the former UST. Soil Borings TP-9A through TP-9D were located at the former test pit edges, while Soil Borings SB-8 through SB-10 were located approximately 5 ft outward from Soil Borings TP-9A, TP-9B, and TP-9D, respectively (Plate 2). The soil samples were analyzed for parameters that include one or more of the following: BNs and TAL metals.

Although the analytical results of TP-9A, TP-9B, TP-9C, and TP-9D were discussed in Section 2.3, the results are incorporated into the discussions of the current investigation results provided below.

4.4.3.1 Field Inspection Results

The results of the field inspection indicate that no staining or odors were present in the soil samples collected at the former UST Area at TP-9. The PID readings ranged from not detected to 24 ppm.

4.4.3.2 Analytical Results

A description of the analytical results is provided below.

BNs

Nineteen BNs were detected in soil at the former UST Area at TP-9 (Table 13). Five of the 19 BNs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, chrysene, and dibenzo[a,h]anthracene) were detected in soil (6 ft to 8 ft bls) at concentrations that exceed the NYSDEC RSCOs on the north (TP-9A), east (TP-9B), and west (TP-9D) sides of the former test pit at TP-9 (Table 13). Chrysene and dibenzo [a,h] anthracene at SB-9 (6 ft to 8 ft bls) were the only BNs detected in soil at a concentration that exceeded their NYSDEC RSCOs in the delineation samples furthest from the former UST Area at TP-9.

TAL Metals

Fourteen TAL metals were detected in soil at the former UST Area at TP-9 (Table 4). Three of the 14 metals (iron, chromium, and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 4). However, only zinc at TP-9C (6 ft to 8 ft bls), located on the south

side of the former UST Area, exceeded its Eastern USA Background Concentration of 50 milligrams per kilogram (mg/kg). The zinc concentration at TP-9C is 54 mg/kg (Table 4).

4.4.4 Former Leaching Field

Soil Borings SB-11, SB-12, and SB-13 were sampled in the former leaching field to verify that no residual contamination from the former drywells remain. The soil samples were analyzed for VOCs, SVOCs, cyanide (CN), and TAL metals. In addition, Soil Boring SB-12 was sampled to verify the absence of DNAPL at this location.

4.4.4.1 Field Inspection Results

The results of the field inspection indicate that no odors were present in the soil samples collected from the former leaching field. Staining was observed in the samples collected from 4 ft to 8 ft bls at Soil Boring SB-13. The PID readings ranged from 1 ppm to 37 ppm.

4.4.4.2 Analytical Results

A description of the analytical results is provided below.

VOCs

One VOC (i.e., toluene at Soil Boring SB-11 at 8 ft to 10 ft bls and SB-13 at 6 ft to 8 ft bls) was detected in soil at the former leaching field (Table 5). This VOC was not detected in soil at a concentration that exceeds its NYSDEC RSCO (Table 5).

SVOCs

Eleven SVOCs were detected in soil at the former leaching field (Table 6). These SVOCs were not detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 6).

CN

CN was not detected in any of the soil samples collected from the former leaching field (Table 4).

TAL Metals

Nineteen TAL metals were detected in soil at the former leaching field (Table 4). Five of the 19 metals (beryllium, chromium, iron, nickel, and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 4). However, the reported concentrations of these five metals were detected below their respective Eastern USA Background Concentration.

DNAPL

The results of the hydrophobic dye test indicate that DNAPL was not present beneath the former leaching field at Soil Boring SB-12 (34 ft to 36 ft bls).

4.4.5 Remaining Areas of Site Outside of Former Buildings

Soil Borings SB-23 and SB-24 were sampled along the eastern and western portions of the Site, respectively, outside of the former building footprint to characterize soil quality (Plate 2). The soil samples were analyzed for VOCs, SVOCs, CN, and TAL metals. The soil samples collected from Soil Borings SB-23 (34 ft to 36 ft bls) and SB-24 (34 ft to 36 ft bls) were also tested to verify the absence of DNAPL using a hydrophobic dye test.

Additionally, soil samples were collected from throughout the Site during the Hydropunch™ groundwater screening task (see Section 3.2.3). Soil samples from 44 soil borings (SB-31 through SB-50 and SB-53 through SB-76) were collected and field inspected. Based on the field inspection results, a sample from Soil Borings SB-47, SB-67, SB-71, and SB-72, located outside of the former building footprint, were submitted to the laboratory for analysis of one or more of the following parameters: VOCs, SVOCs, CN, and TAL metals. Additionally, a soil sample from Soil Borings SB-32, SB-44, SB-70, SB-71, and SB-72 were submitted to the laboratory, and measured for its soil pH.

4.4.5.1 Field Inspection Results

The field inspection results from the Sitewide characterization and Hydropunch™ borings indicate that no odors were present in any of the samples collected. Staining was present in Soil Borings SB-63 (6 ft to 9 ft bls), SB-68 (4 ft to 6 ft bls), SB-72 (10 ft to 12 ft bls), and SB-73 (10 ft to 12 ft bls). The PID readings ranged from not detected to 31 ppm for the majority of the

samples measured from the Sitewide characterization and Hydropunch™ soil borings, and at 1800 ppm at Soil Boring SB-69.

4.4.5.2 Analytical Results

A description of the analytical results is provided below.

VOCs

Three VOCs were detected in soil outside of the former building footprint (Table 5). These three VOCs were not detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 5).

SVOCs

Twenty-three SVOCs were detected in soil outside of the former building footprint (Table 6). Four of the 23 SVOCs (benzo[a]anthracene, benzo[a]pyrene, chrysene, and dibenzo[a,h]anthracene) were detected in soil at concentrations that exceed the NYSDEC RSCOs at Soil Borings SB-23 (0 to 2 ft bls) and SB-72 (10 to 12 ft bls) (Table 6).

CN

CN was not detected in any of the soil samples collected from the Sitewide characterization soil borings (Table 4).

TAL Metals

Twenty-two TAL metals were detected in soil outside of the former building footprint (Table 4). Eight of the 22 metals (arsenic, beryllium, chromium, copper, iron, nickel, selenium and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 4).

Arsenic exceeded its NYSDEC RSCO of 7.5 mg/kg in Soil Boring SB-23 (0 to 2 ft bls) at 53.3 mg/kg. In addition, this sample exceeded its Eastern USA Background Concentration of 12 mg/kg. Soil Boring SB-23 is located in the former parking lot on the east side of the Site (Plate 2).

Beryllium exceeded its NYSDEC RSCO of 0.16 mg/kg in Soil Boring SB-23 (0 to 2 ft bls) at 0.23 mg/kg. However, the reported concentration of this metal was detected below its Eastern USA Background Concentration of 1.75 mg/kg.

Chromium exceeded its NYSDEC RSCO of 10 mg/kg in Soil Borings SB-23 (0 to 2 ft bls) and SB-72 (10 ft to 12 ft bls) at 29.1 mg/kg and 24.1 mg/kg, respectively. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration of 40 mg/kg.

Copper exceeded its NYSDEC RSCO of 25 mg/kg in Soil Boring SB-23 (0 to 2 ft bls) at 32.2 mg/kg. However, the reported concentration of this metal was detected below its Eastern USA Background Concentration of 50 mg/kg.

Iron exceeded its NYSDEC RSCO of 2,000 mg/kg in all of the Sitewide characterization and Hydropunch™ samples analyzed. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration up to 550,000 mg/kg.

Nickel exceeded its NYSDEC RSCO of 13 mg/kg in Soil Borings SB-23 (0 to 2 ft bls) and SB-72 (10 to 12 ft bls) at 47.2 mg/kg and 22.9 mg/kg, respectively. The reported concentrations of this metal were detected below its Eastern USA Background Concentration of 25 mg/kg at SB-72, while exceeding at Soil Boring SB-23.

Selenium exceeded its NYSDEC RSCO of 2 mg/kg in Soil Boring SB-23 (0 to 2 ft bls) at 4.8 mg/kg. The reported concentration of this metal was detected above its Eastern USA Background Concentration of 3.9 mg/kg.

Zinc exceeded its NYSDEC RSCO of 20 mg/kg in Soil Borings SB-23 (0 to 2 ft bls) and SB-72 (10 to 12 ft bls) at 420 mg/kg and 48 mg/kg, respectively. The reported concentrations of this metal were detected below its Eastern USA Background Concentration of 50 mg/kg in Soil Boring SB-72, while exceeding at Soil Boring SB-23.

pH

The pH measured in soil ranged from 7.24 Standard Units (SU) to 9.98 SU in Soil Borings SB-32 (0 to 2 ft, 4 ft to 6 ft, and 8 ft to 10 ft bls), SB-44 (0 to 2 ft, 4 ft to 6 ft, and 8 ft to 10 ft bls), and SB-70 (0 to 2 ft, 4 ft to 6 ft, and 8 ft to 10 ft bls), SB-71 (10 ft 12 ft bls), and SB-72 (10 ft to 12 ft bls) throughout the Site (Table 14).

DNAPL

The results of the hydrophobic dye test indicate that DNAPL was not present at Soil Borings SB-23 and SB-24.

4.4.6 Risk Assessment Borings

The soil quality results from Soil Borings SB-25 through SB-30 and Surface #1 through Surface #12 were used in a risk assessment to demonstrate that the soil quality throughout the Site does not pose a potential risk to human health based on the intended future residential use of the Site. The soil quality analytical results are discussed in this section with their significance discussed in the risk assessment in Section 7.0.

The soil samples collected from Soil Borings SB-25 through SB-30 were collected at 0 to 2 ft bls and 4 ft to 6 ft bls, while the soil samples collected from Surface #1 through Surface #12 were collected from 0 to 2 inches bls. The samples from these borings were analyzed for CVOCs, CN, and TAL metals. Additionally, samples from Soil Borings Surface #1, #3, #4, #5, #8, #10, #11, and #12 were also collected from 0 to 2 ft bls (see Section 3.3). The samples from these borings were analyzed for BNs. The locations of Soil Borings SB-25 through SB-30 and Surface #1 through Surface #12 are shown in Plate 5.

4.4.6.1 Field Inspection Results

The field inspection results indicate that no odors were present in the soil samples collected for the risk assessment. Staining was observed in two soil samples, SB-27 (4 ft to 6 ft) and SB-29 (0 to 2 ft). The PID readings ranged from not detected to 59 ppm.

4.4.6.2 Analytical Results

A description of the analytical results is provided below.

Soil Borings SB-25 through SB-30

The analytical results for samples collected from Soil Borings SB-25 through SB-30 is provided below.

CVOCs

Two CVOCs were detected in soil from the Risk Assessment Soil Borings SB-25 through SB-30. These two CVOCs were not detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 5).

CN

CN was not detected in any of the soil samples collected from Soil Borings SB-25 through SB-30 (Table 4).

TAL Metals

Twenty-three TAL metals were detected in soil from Soil Borings SB-25 through SB-30 (Table 4). Six of the 23 metals (beryllium, chromium, iron, magnesium, nickel, and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 4).

Beryllium exceeded its NYSDEC RSCO of 0.16 mg/kg in 11 of the 12 soil borings sampled. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration of 1.75 mg/kg.

Chromium exceeded its NYSDEC RSCO of 10 mg/kg in nine of 12 soil borings sampled. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration for chromium of 40 mg/kg.

Iron exceeded its NYSDEC RSCO of 2,000 mg/kg in 12 of 12 soil borings sampled. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration up to 550,000 mg/kg.

There is no NYSDEC RSCO for magnesium, but the Eastern USA Background Concentration for this metal (5,000 mg/kg) was exceeded at Soil Boring SB-26 (0 to 2 ft bls) at 13,000 mg/kg.

Nickel exceeded its NYSDEC RSCO of 13 mg/kg in three of the 12 soil borings sampled. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration for nickel of 25 mg/kg.

Zinc exceeded its NYSDEC RSCO of 20 mg/kg in 11 of the 12 soil borings sampled. Zinc also exceeded its Eastern USA Background Concentration of 50 mg/kg in five of the 11 samples (SB-26 [0 to 2 ft bls and 4 to 6 ft bls], SB-27 [0 to 2 ft bls], and SB-30 [0 to 2 ft bls and 4 to 6 ft bls]) ranging from 93.8 mg/kg to 142 mg/kg.

Soil Borings Surface #1 through Surface #12 (0 to 2 inches bls)

The analytical results for samples collected from Surface #1 through Surface #12 is provided below.

VOCs

Four VOCs were detected in soil from the risk assessment Soil Borings Surface #1 through Surface #12 (Table 5). These four VOCs were not detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 5).

TAL Metals

Twenty-two TAL metals were detected in soil from Soil Borings Surface #1 through Surface #12 (Table 4). Nine of the 22 metals (arsenic, beryllium, cadmium, calcium, chromium, copper, iron, nickel, and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 4).

Arsenic exceeded its NYSDEC RSCO of 7.5 mg/kg in one of the 12 soil borings sampled. Arsenic also exceeded its Eastern USA Background Concentration of 12 mg/kg at Surface #10 at 22.6 mg/kg.

Beryllium exceeded its NYSDEC RSCO of 0.16 mg/kg in seven of the 12 soil borings sampled. However, the reported concentrations of this metal were detected below its Eastern USA Background Concentration of 1.75 mg/kg.

Cadmium exceeded its NYSDEC RSCO of 1 mg/kg in two of the 12 soil borings sampled. Cadmium also exceeded its Eastern USA Background Concentration of 1 mg/kg at Surface #2 and Surface #10 at 3 mg/kg and 1.1 mg/kg, respectively.

There is no NYSDEC RSCO for calcium, but the Eastern USA Background Concentration for this metal (up to 35,000 mg/kg) was exceeded at Soil Boring Surface #2 at 36,200 mg/kg.

Chromium exceeded its NYSDEC RSCO of 10 mg/kg in nine of the 12 soil borings sampled. The reported concentrations of this metal were detected below its Eastern USA Background Concentration for chromium of 40 mg/kg, with the exception of Surface #10 and Surface #11 at 109 mg/kg and 79.3 mg/kg, respectively.

Copper exceeded its NYSDEC RSCO of 25 mg/kg in three of the 12 soil borings sampled. The reported concentrations of this metal were detected below its Eastern USA Background Concentration for copper of 50 mg/kg, with the exception of Surface #10 at 343 mg/kg.

Iron exceeded its NYSDEC RSCO of 2,000 mg/kg in 10 of 12 soil borings sampled. The reported concentrations of this metal were detected below its Eastern USA Background Concentration up to 550,000 mg/kg.

Nickel exceeded its NYSDEC RSCO of 13 mg/kg in two of the 12 soil borings sampled. The reported concentrations of this metal were detected below its Eastern USA Background Concentration for nickel of 25 mg/kg, with the exception of Surface #10 at 72.8 mg/kg.

Zinc exceeded its NYSDEC RSCO of 20 mg/kg in 10 of the 12 soil borings sampled. Zinc also exceeded its Eastern USA Background Concentration of 50 mg/kg in seven of the 10 soil samples (Surface #1, #2, #4, #5, #10, #11, and #12) ranging from 50.8 mg/kg to 393 mg/kg.

Soil Borings Surface #1 #3, #4, #5, #8, #10, #11, and #12 (0 to 2 ft bls)

The analytical results for samples collected at 0 to 2 ft bls from Soil Borings Surface #1, #3, #4, #5, #8, #10, #11, and #12 is provided below.

BNs

Sixteen BNs were detected in soil from the Risk Assessment Soil Borings Surface #1 #3, #4, #5, #8, #10, #11, and #12 (Table 14). Six of the 16 BNs (benzo [a] anthracene, benzo[a]pyrene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, and dibenzo[a,h]anthracene) were detected in soil at concentrations that exceed the NYSDEC RSCOs (Table 13).

4.5 Subsurface Building Structures and Material Quality

The following sections present a description of the subsurface building structures encountered during the test pit/trenching activities and the field inspection and laboratory analytical results of the subsurface building structure material samples. Please note that the discussion of the analytical results is focused on the comparison between the concentrations of the detected constituents and the appropriate SCGs (i.e., whether an exceedance has occurred).

The laboratory analytical results are presented by the type of material, and by analyte for each type of material. The sample matrices include both solids and liquids (which are not soil or groundwater), and were collected from a variety of subsurface structures (see below) that were encountered during the test pit/trenching activities. The soil samples were analyzed for parameters that include one or more of the following: VOCs, SVOCs, TAL metals, PCBs, TPH, and pH. In addition, selected samples were analyzed using the TCLP and/or Synthetic Precipitation Leaching Procedure (SPLP) to determine the potential for impacts that may leach from the solid material, and affect groundwater quality. The samples analyzed using the TCLP and/or SPLP included one or more of the following parameters: VOCs, SVOCs, and TAL metals.

The analytical results of the subsurface building structure material were evaluated in the risk assessment to determine if the results pose a potential risk to human health based on the intended future residential use of the Site (see Section 7.0).

4.5.1 Subsurface Building Structures

As described in Section 3.2.5, 25 test pits/trenches were excavated throughout the Site from land surface to the water table, where possible, to locate a source(s) of the previously identified groundwater impacts. Plate 3 shows the excavated horizontal extent of the 25 test pits/trenches, the structures encountered, locations of specific subsurface building structure material, sampling locations, and a summary of the sample analytical results.

Clay and iron pipes, ranging in diameter from 1 inch to 15 inches, were identified throughout the Site (Plate 1). The entire length of each pipe was not observed, yet portions of those pipes observed were located in an area where a potential source(s) of the previously identified groundwater impacts may have been present. Without engineering plans (which were not available from the current owner and the local building department), the actual usage of each pipe is unknown. However, it is likely that some of the pipes were for potable water and sanitary usage, while others were likely used by the former manufacturing firms for the discharge of process wastes at the Site.

Six former leaching structures were identified at the Site (Plate 3). Three of these structures were identified at Test Pit TP-32, north of the former plating area in the central portion of the Site. Please note that these three former leaching structures were identified on a 1945 Plot Plan of the Site (Appendix B). These structures were observed by Roux Associates to be approximately 10 ft in diameter and constructed of hollow concrete blocks from approximately 3 ft bls to the water table (i.e., approximately 8 ft to 10 ft bls). Additionally, the east and west structures were observed to be filled in with wood debris and fill material, while the center structure was not observed to be filled in.

Two of these structures were identified at Test Pit TP-19, west of former Building 3 in the north-central portion of the Site. These two structures were observed by Roux Associates to be approximately 3 ft in diameter and constructed of brick at the top underlain with hollow concrete blocks from approximately 3 ft bls to the water table. Additionally, these structures were observed to contain fill material. One soil sample from each structure was collected for analysis (see Section 4.5.3.1).

One of these structures was identified at Test Pit TP-33, west of former Building 8 in the west-central portion of the Site. This structure was observed by Roux Associates to be approximately 10 ft in diameter and constructed of hollow concrete blocks from approximately 3 ft bls to the water table. Additionally, this structure was observed to contain fill material.

A former septic chamber was identified at the Site (Plate 3). This structure was identified at Test Pit TP-32 between the former plating area and the three 10-ft diameter former leaching structures, in the central portion of the Site. Please note that this structure was identified on a 1945 Plot Plan of the Site (Appendix B). The former septic chamber was observed by Roux Associates to be constructed of concrete, and its dimensions are approximately 30 ft in length by 20 ft in width by 10 ft in depth. The top of the former septic chamber was observed to be approximately 3 ft bls. The septic chamber was also observed to be partially filled (approximately half full) with liquid and sediment, which was collected for analysis (see Sections 4.5.3.1 and 4.5.3.2).

A former leaching chamber was identified on the 1945 Plot Plan (Appendix B) adjacent to the concrete structure (TP-16) at the former plating area. This structure was not encountered during the test pit/trenching activities. However, a 3-ft diameter manhole was identified in the south portion of the former leaching chamber location (Plate 3). The manhole was observed by Roux Associates to be constructed of brick, approximately 3 ft deep with a concrete base, and contained fill material.

The remnants of a former concrete septic tank were identified at Test Pit TP-31, west of former Building 3 in the northwestern portion of the Site (Plate 3). The size of the former tank could not be determined, and it was observed by Roux Associates to be crushed. Fill material was present surrounding the former tank.

Concrete structures of various shapes and sizes were identified at the Site (Plate 3). The concrete structures were identified at TP-15 (former cradles), TP-16 (former plating area), TP-21 (pad), TP-24 (pad with attached machinery), TP-32 (walls adjacent to the former leaching structures

and former septic chamber), TP-33 (pad in the former heater room), TP-34 (pad in the southeastern portion of former Building 1), and TP-35 (pad in the western portion of former Building 1).

During the test pit/trenching, wood debris was identified throughout Test Pits TP-12 and TP-32, and in a portion of Test Pit TP-16. In general, the wood debris, which may have been placed in these locations during the demolition of the former buildings, was present from approximately 1 ft bls to 4 ft bls. A green material, based on its color, was identified at TP-16 (with approximate dimensions of 15 ft in length by 10 ft in width and at a depth of 10 ft to 12 ft bls), west of the former leaching chamber and concrete structure of the former plating area. The green material was also identified inside a 6-inch iron pipe at TP-21 and TP-23. Elemental mercury was observed, mixed with green material and typical site fill material, inside a manhole at Test Pit TP-23, in the northwestern portion of the south former parking lot. The green material and the mercury have been removed and disposed offsite (see Section 5.0).

As stated in Section 3.2.5, if impacts were identified based on the field inspection results of the subsurface building structures, or if the nature of the structures (e.g., leaching structures) indicated that impacts could be present in the subsurface, samples were collected for laboratory analysis.

4.5.2 Field Inspection Results

Staining and odors were present in the subsurface wood debris and odors were present in the green material. The PID reading for the wood debris was 250 ppm, while the PID readings for the green material ranged from not detected to 130 ppm. The elemental mercury (mixed with green and typical site fill material) was not screened using a mercury vapor analyzer.

No staining or odors were present in all other subsurface building structure solid material at the Site, while the PID readings ranged from not detected to 700 ppm.

No sheens or odors were present in the subsurface building structure material (liquid material) at the Site.

4.5.3 Analytical Results

A description of the solid and liquid material analytical results is provided below.

4.5.3.1 Solid Material

VOCs

Fifteen VOCs were detected in the subsurface building structure material throughout the Site (Table 15). Eight of the 15 VOCs were detected at concentrations that exceed the NYSDEC RSCOs (Table 15). The VOCs that exceed include methylene chloride, acetone, 2-butanone, TCE, toluene, chlorobenzene, ethylbenzene, and xylenes. Of these, methylene chloride, acetone, and 2-butanone were also detected in the laboratory control blanks and are, therefore, considered laboratory artifacts and not considered representative of Site-related impacts.

TCE, toluene, chlorobenzene, ethylbenzene, and xylenes were detected in the subsurface building structure material at concentrations that exceed their respective NYSDEC RSCOs at only two sampling locations: Test Pit TP-16 GS-1 and TP-16-GS. Test Pit TP-16 is located at the former plating area in the central portion of the Site (Plate 3). The green material was identified at the former plating area, and has been identified at two other locations (TP-21 and TP-23) at the Site (Plate 3).

Chlorobenzene was also detected in the subsurface building structure material at a concentration that exceeds its NYSDEC RSCO at sampling location ST-1. Sample ST-1 was collected from the septic chamber located in the central portion of the Site (Plate 3).

There were no exceedances of the USEPA regulatory levels for VOCs in the subsurface building structure material using the TCLP and SPLP (Table 16).

SVOCs

Thirty-three SVOCs were detected in the subsurface building structure material throughout the Site (Table 17). Nineteen of the 33 SVOCs were detected at concentrations that exceed the NYSDEC RSCOs (Table 17). The acid extractable constituents of the SVOCs that exceed the NYSDEC RSCOs include 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, dibenzofuran, phenol, 2-methylphenol, 4-methylphenol, dimethyl phthalate, while the BN

constituents of the SVOCs that exceed include benzo(a)anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, benzo[g,h,i] perylene, fluoranthene, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

The areas of the Site where the SVOCs exceeded the NYSDEC RSCOs include the former fireproof room at the north concrete cradle at TP-15, the former plating area at TP-16, the north leaching structures at TP-19, the pipes in the southeast portion of the Site at TP-21 and TP-23, the former septic tank at TP-31, the leaching structures in the central portion of the Site and the septic chamber at TP-32, and the former pump house at TP-35 (Plate 3).

There were no exceedances of the USEPA regulatory levels for SVOCs in the subsurface building structure material using the TCLP and SPLP (Table 18).

Metals

Twenty-three TAL metals were detected in the subsurface building structure material throughout the Site (Table 19). Fifteen of the 23 metals were detected at concentrations that exceed the NYSDEC RSCOs (Table 19). The metals that exceed include arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, mercury (discussed above), nickel, selenium, and zinc.

Iron was the only metal that exceeded its NYSDEC RSCO of 2,000 mg/kg in all subsurface building structure material samples. Additionally, iron was the only metal that the reported concentrations were detected below its Eastern USA Background Concentration up to 550,000 mg/kg.

The areas of the Site where metals exceeded the NYSDEC RSCOs include the former fireproof room at the north and south concrete cradles at TP-15, the former plating area at TP-16, the leaching structures at TP-19, the pipes in the southeast portion of the Site at TP-21 and TP-23, the former septic tank at TP-31, the leaching structures in the central portion of the Site and the septic chamber at TP-32, the leaching structure at TP-33, the former pump house at TP-35, and the pipe near the former welding shop area at TP-36 (Plate 3).

Chromium was the only metal to exceed its USEPA regulatory level of 5,000 µg/L in the subsurface building structure material using the TCLP and SPLP (Table 20).

CN

CN was detected in three samples (i.e., in the green material) ranging in concentration from 12.8 mg/kg to 171 mg/kg in samples GS-1 and GS-2 at the former plating area and TP-21-1 on the eastern-central portion of the Site at Test Pit TP-21 (inside a pipe) (Table 19). CN was also detected in two samples from the sediment in the west and north pipes leading into a manhole on the eastern-central portion of the Site at concentrations of 4.04 mg/kg and 16.7 mg/kg, respectively.

PCBs

Three PCB Aroclors were detected in the subsurface building structure material (i.e., in the green material and stained wood debris), which include Aroclors 1242, 1254, and 1260 (Table 21). These three Aroclors were not detected at concentrations that exceed the NYSDEC RSCOs (Table 21).

TPH

TPH was measured in seven samples collected at TP-16 (at the former plating area) and one sample from TP-32 (north of the plating area). The TPH concentration at TP-16 was measured at 21,000 mg/kg in one sample collected at a depth of 12 ft to 13 ft bls, at 7,800 mg/kg in the green material, ranging from not detected to 200 mg/kg in four post-excavation samples where the green material was excavated, and at 2,200 mg/kg in the wood debris at this location (Table 22). The TPH at TP-32 was measured at 270 mg/kg in the wood debris (Table 22).

pH

The pH of the subsurface building structure material from Test Pits TP-15, TP-16, TP-19, and TP-23 ranged from 6.28 SU to 9.01 SU (Table 23).

4.5.3.2 Liquid Material

VOCs

Eleven VOCs were detected in the subsurface building structure material (liquid metal) at the east, center, and west former leaching structures (at an approximate depth of 8 ft to 10 ft bls), at the former septic chamber (at an approximate depth of 6 ft bls), and from the metal box at Test Pit 33 (at an approximate depth of 2 ft to 3 ft bls) (Table 24). Three of the 11 VOCs (TCE, 1,1,1-trichloroethane [TCA], and chlorobenzene) were detected in the subsurface building structure material at concentrations that exceed their respective NYSDEC AWQSGVs (Table 24). These VOC exceedances occurred in the sample collected from the east leaching structure (LP-E) and the septic chamber (ST-1B) at TP-32, north of the former plating area in the central portion of the Site.

SVOCs

Eleven SVOCs were detected in the subsurface building material at the east, center, and west former leaching structures and at the former septic chamber (Table 25). These 11 SVOCs were not detected in the subsurface building structure material at concentrations that exceed the NYSDEC AWQSGVs (Table 25).

Metals

Twenty-two TAL metals (filtered and unfiltered) were detected in the subsurface building structure material at the east, center, and west former leaching structures, at the former septic chamber, and from the metal box at Test Pit 33 (Table 26). Six of the 22 metals were detected in unfiltered samples at concentrations that exceed the NYSDEC AWQSGVs (Table 26). These six metals include iron, lead, magnesium, manganese, sodium, and thallium. Except for lead, these six metals were also detected at concentrations that exceed the NYSDEC AWQSGVs in filtered samples.

4.6 Groundwater Quality

This section presents the laboratory analytical results of the groundwater samples collected in June/July 2001 from the 33 onsite monitoring wells (i.e., 23 new and 10 existing wells). The results are presented by analyte for the entire Site. Please note that the discussion of the

analytical results is focused on the comparison between the concentrations of the detected constituents and the appropriate SCGs (i.e., whether an exceedance has occurred).

Additionally, the results are discussed with reference to three groundwater zones at the Site. The shallow groundwater zone refers to the shallow wells that are screened from approximately 8 ft to 18 ft bls (i.e., water table), while the intermediate groundwater zone refers to the intermediate wells that are screened approximately at 30 ft to 50 ft bls. Lastly, the deep groundwater zone refers to the deep wells screened at approximately 105 ft to 125 ft bls.

A brief overview of the groundwater sampling programs previously performed and those implemented during the IWP and SI is provided below. Table 10 provides a summary of the Hydropunch™/Geoprobe™/monitoring well designations, location, total depth of sampling point or well, well screen interval, laboratory analysis, and drilling method.

The groundwater analytical results were also evaluated in the risk assessment to determine if the results pose a potential risk to human health based on the intended future residential use of the Site (see Section 7.0).

Overview

The purpose of the previous groundwater investigations was to characterize the groundwater quality at the Site. Additionally, the groundwater quality characterized during the previous investigations was only from the shallow groundwater zone. The results indicated that CVOCs were present in the shallow groundwater zone at concentrations that exceed the NYSDEC AWQSGVs (see Section 2.3). Based on these results, an onsite groundwater quality investigation was warranted to determine the horizontal and vertical extent of the CVOCs in groundwater, which was implemented in phases during the IWP and SI.

During the IWP, eight monitoring wells were installed in the shallow groundwater zone throughout the Site to further characterize groundwater quality. The groundwater results from the eight monitoring wells plus two existing wells indicated that CVOCs were detected in the shallow groundwater zone at concentrations that exceed the NYSDEC AWQSGVs (Table 3).

Additionally, the groundwater quality was characterized utilizing temporary wells at a depth (34 ft to 36 ft bls) deeper than the shallow monitoring wells in four locations distributed throughout the Site to verify the absence of DNAPL. The groundwater quality results indicated that DNAPL was not present (see Section 4.4), and that CVOCs were detected at concentrations that exceeded the NYSDEC AWQSGVs in two of the four deeper groundwater samples (Table 3). Based on these groundwater results, additional groundwater sampling was necessary to achieve the groundwater investigation objective. Therefore, to keep the project on its expedited schedule due to the property transfer, the additional groundwater samples were collected using the Hydropunch™ method. This method permits the collection of discrete groundwater samples to rapidly delineate the horizontal and vertical extent of the CVOCs in groundwater, to better locate the wells/well screens, and to eliminate the need for additional well installation phases.

During the SI, Hydropunch™ groundwater samples were collected and analyzed from Water-Quality Borings SB-31 through SB-50 (Plate 2). The results indicated that DNAPL, where analyzed, was not present and CVOCs were detected at concentrations that exceeded the NYSDEC AWQSGVs to a depth of 50 ft bls (Tables 3 and 27), which is the approximate depth to the top of a silt/clay layer. Based on these results, additional Water Quality Borings SB-53 through SB-74 (Plate 2) were sampled to complete the horizontal and vertical delineation (i.e., deeper than 50 ft bls) of the CVOCs in groundwater. Additionally, several of the original water quality borings (SB-32, SB-40, SB-41, SB-44, and SB-45) were sampled to vertically delineate (i.e., deeper than 50 ft bls) the CVOCs in those areas of the Site.

Please note that concurrent with the Hydropunch™ sampling, other types of samples (e.g., subsurface building structure material) were collected and analyzed. The analytical results of these samples indicated that non-chlorinated VOCs were present in the subsurface at the Site. Therefore, the groundwater samples collected from Water Quality Borings SB-32, SB-40, SB-41, SB-44, SB-45, SB-64, SB-66, SB-67, SB-68, SB-71, SB-72 and SB-74 were then analyzed for the full list of VOCs in accordance with the USEPA Method 8260.

The additional Hydropunch™ sampling results (Table 3) indicated that CVOCs were detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs in an area approximately

one-third the size of the Site to a depth of approximately 125 ft bls. Plates 12 and 19 show the generalized horizontal extent of the VOCs (i.e., TCE, PCE, and TCA, which are the predominant VOCs detected) detected in the shallow and intermediate groundwater zones at concentrations that exceed the NYSDEC AWQSGVs for the June/July 2001 monitoring well sampling round. The generalized extent of VOCs determined utilizing the monitoring well sampling data is similar to the horizontal extent determined utilizing the Hydropunch™ sampling data.

Plate 6 shows the estimated vertical extent of TCE detected in the shallow, intermediate, and deep groundwater zones in several areas of the Site that exceed the NYSDEC AWQSGVs for the monitoring well sampling round. Plate 7 shows the estimated vertical extent of PCE detected in the shallow, intermediate, and deep groundwater zones in several areas of the Site that exceed the NYSDEC AWQSGVs for the monitoring well sampling round, while Plate 20 shows the same information for TCA. These results indicate that the estimated vertical extent of VOCs detected in groundwater in the three zones at concentrations that exceed the NYSDEC AWQSGVs for the monitoring well sampling round are similar to the estimated vertical extent of VOCs based on the Hydropunch™ sampling results. A more detailed discussion regarding the horizontal and vertical extent of the predominant VOCs in groundwater is provided below.

After the Hydropunch™ sampling results were evaluated, 23 monitoring wells were located and installed (in addition to the 10 existing onsite wells) to demonstrate that the horizontal and vertical extent of the VOCs was delineated, as well as other parameters sampled. All groundwater samples were analyzed for VOCs, SVOCs, TAL metals (filtered and unfiltered), CN, and PCBs. The analytical results from the monitoring well sampling event were used to characterize the groundwater quality at the Site because the data is reproducible for future monitoring events rather than the Hydropunch™ data, and are discussed below.

4.6.1 VOCs

Thirteen VOCs were detected in groundwater from the shallow, intermediate, and deep zones at the Site (Table 3). Seven of the 13 VOCs were detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs in the shallow and intermediate zones (Table 3). VOCs were not detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs in the deep

zone at the Site (Table 3). Additionally, the VOC concentrations detected in the deep groundwater zone are equal to or less than 1 µg/L. Methylene chloride was detected in the laboratory blanks, and therefore, is not considered a Site-related contaminant.

TCE, PCE, and TCA were the predominant VOCs detected in groundwater at the Site. The generalized horizontal extent of these three VOCs from the shallow and intermediate zones is shown in Plates 12 through 19. The estimated vertical extent of these three VOCs in the shallow, intermediate, and deep zones at the Site is shown in Plates 6, 7 and 20.

The predominant VOCs (i.e., TCE, PCE, and TCA) detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs are present in three overlapping plumes at the Site. Please note that a plume is considered a three-dimensional body of groundwater that contains the VOC constituent that exceeds a NYSDEC AWQSGV.

A description of the TCE, PCE, and TCA groundwater quality results is provided below.

TCE

TCE was detected in the shallow groundwater zone at concentrations that exceed its NYSDEC AWQSGV of 5 µg/L at two isolated locations at the Site (Plate 14). The portion of the TCE plume in the shallow zone is located as follows: 1) at Monitoring Well MW-28, and 2) at an area of the Site that extends from approximately 20 ft south-southwest of the former septic chamber southeastward approximately 330 ft to an area approximately 30 ft south of Monitoring Well MW-2 near the south property boundary. The latter TCE plume is approximately 170 ft wide, at its widest portion. The highest TCE concentration in the shallow groundwater zone was detected at Monitoring Well MW-31S (100 µg/L) (Plate 14).

TCE was also detected in the intermediate groundwater zone at concentrations that exceed its NYSDEC AWQSGV at the Site (Plate 15). The portion of the TCE plume in the intermediate zone is present in an area approximately one-third the size of the Site that extends from approximately 40 ft southwest of the Monitoring Well MW-23 well cluster southward to the south property boundary. Laterally, this portion of the TCE plume extends from approximately

20 ft west of the Monitoring Well MW-29 well cluster on the east side of the Site to the western edge of the Site, at its widest portion. The highest TCE concentration in the intermediate groundwater zone was detected at Monitoring Well MW-35I (5,500 µg/L) (Plate 15).

TCE was detected in only one groundwater sample (MW-35D at an estimated concentration of 0.3 µg/L) from the deep groundwater zone at the Site (Table 3). However, the reported concentration of TCE in this sample was detected below its NYSDEC AWQSGV.

The TCE plume is continuous between the shallow and intermediate zones. The estimated vertical extent of TCE detected in groundwater at several areas of the Site is shown in Plate 6. As shown in this plate, the estimated vertical extent of TCE detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs has been delineated to an approximate maximum depth of 93 ft bls.

PCE

PCE was detected in the shallow groundwater zone at concentrations that exceed its NYSDEC AWQSGV of 5 µg/L at two isolated locations at the Site (Plate 16). The portion of the PCE plume in the shallow zone is located as follows: 1) at Monitoring Wells MW-27 and MW-28, and 2) at an area of the Site that extends from the area approximately 10 ft south of the former north wall of former Building 1 approximately 190 ft southward to the area approximately 20 ft northeast of the Monitoring Well MW-2 well cluster near the south property boundary. The latter PCE plume is approximately 135 ft wide, at its widest portion. The highest PCE concentration in the shallow groundwater zone was detected at Monitoring Well MW-31S (100 µg/L).

PCE was also detected in the intermediate groundwater zone at concentrations that exceed its NYSDEC AWQSGV at the Site (Plate 17). The portion of the PCE plume in the intermediate zone is present in an area that extends from approximately 60 ft northwest of the Monitoring Well MW-31 well cluster southward to the south property boundary. Laterally, this portion of the PCE plume is approximately 115 ft wide, at its widest portion. The highest PCE

concentration in the intermediate groundwater zone was detected at Monitoring Well MW-2I (22 µg/L).

PCE was not detected in the deep groundwater zone at the Site (Table 3).

The PCE plume is continuous between the shallow and intermediate zones. The estimated vertical extent of PCE detected in groundwater at several areas of the Site is shown in Plate 7. As shown in Plate 7, the estimated vertical extent of PCE has been delineated to an approximate maximum depth of 83 ft bls.

TCA

TCA was detected in the shallow groundwater zone at concentrations that exceed its NYSDEC AWQSGV of 5 µg/L at two isolated locations at the Site (Plate 18). The portion of the TCA plume in the shallow zone is located as follows: 1) at Monitoring Well 32S, located in the northeastern portion of the Site, and 2) at Monitoring Well MW-31S, located in the eastern portion of former Building 1. The highest TCA concentration in the shallow groundwater zone was detected at Monitoring Well MW-31S (52 µg/L).

TCA was also detected in the intermediate groundwater zone at concentrations that exceed its NYSDEC AWQSGV at the Site (Plate 19). This portion of the TCA plume is present in an area that extends from approximately 40 ft north of the Monitoring Well MW-31 well cluster southward to the south property boundary. Laterally, this portion of the TCA plume is approximately 105 ft wide, at its widest portion. The highest TCA concentration in the intermediate groundwater zone was detected at Monitoring Well MW-2I (68 µg/L).

TCA was not detected in the deep groundwater zone at the Site (Table 3).

The TCA plume is continuous between the shallow and intermediate zones. The estimated vertical extent of TCA detected in groundwater in several areas of the Site is shown in Plate 20. As shown in Plate 20, the estimated vertical extent of TCA has been delineated to an approximate maximum depth of 87 ft bls.

4.6.1.1 TCE, PCE, and TCA Degradation Products

As discussed earlier, the predominant VOCs detected in groundwater that exceed the NYSDEC AWQSGVs are TCE, PCE, and TCA. These compounds can be degraded by chemical and biological processes in the subsurface to form daughter products such as 1,2 DCE, 1,1 DCE, 1,1 DCA, and vinyl chloride (VC). VOCs are typically degraded by reductive dechlorination (or dehalogenation) mechanisms in natural anaerobic (oxygen-poor) environments. Reductive dechlorination involves the sequential removal of a chlorine atom from the VOC, while substituting with a hydrogen atom. The degradation sequences for TCE, PCE and TCA are presented below:

- TCE → 1,2 DCE → VC → ethene→ ethane → carbon dioxide and water;
- PCE → TCE → 1,2 DCE → VC → ethene→ ethane → carbon dioxide and water; and
- TCA → 1,1 DCA → Chloroethane → ethane → carbon dioxide and water.

TCE, PCE, and TCA degradation products (such as 1,2 DCE, 1,1 DCA, and VC) have been detected in groundwater from the shallow and intermediate zones at the Site (Table 3), indicating that natural reductive dechlorination is occurring. The degradation products were predominantly detected in the intermediate zone rather than the shallow zone. This is most likely a result of favorable biogeochemical conditions (anaerobic) in the intermediate zone groundwater for reductive dechlorination to occur.

The biogeochemical parameters (dissolved oxygen [DO] in mg/L and oxidation-reduction potential [ORP] in millivolts [mV] measured in the field during the recent monitoring well sampling event (Appendix G) indicate that the intermediate zone is more reducing (anaerobic) than the shallow zone (aerobic). The DO measured in the intermediate zone ranged from 0.0 mg/L in MW-34I to 0.67 mg/L in MW-30I as compared to 0.45 mg/L in MW-2 to 8.61 mg/L in MW-27 in the shallow zone. The ORP measured in the intermediate zone ranged from 124 mV in MW-30I to –126 mV in MW-34I as compared to 70 mV in MW-33S to 284 mV in MW-23 in the shallow zone.

The degradation of 1,2 DCE to VC, and the degradation of VC to ethene, generally requires much more strongly reducing conditions in groundwater (typically in the range of -200 to -400 mV) than do the initial degradation steps. The more highly chlorinated compounds are most susceptible to reductive dechlorination because of their higher state of oxidation (McCarty, 1995). The intermediate zone is not reducing enough (i.e., the ORP is not negative enough) to allow for the complete degradation to occur, however, an accumulation of some of the less oxidized daughter products has been observed (such as the accumulation of 1,2 DCE and VC in MW-34I). As a result, the ORP of the groundwater system is dependent on and can influence the specific reductive dechlorination processes (Wiedemeier, 1996).

4.6.2 SVOCs/BNs

Eleven SVOCs/BNs were detected in groundwater from the shallow, intermediate, and deep groundwater zones at the Site (Table 7). None of the 11 SVOCs/BNs were detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs (Table 7). Two of the 11 SVOCs, bis(2-ethylhexyl)phthalate and di-n-butylphthalate, were detected in the laboratory blanks, and therefore, are not considered Site-related contaminants. In general, the SVOCs/BNs were detected at a concentration equal to or less than 1 µg/L. Additionally, no SVOCs/BNs were detected in groundwater at the former UST Area at TP-9 (Table 28).

4.6.3 TAL Metals

Twenty-two TAL metals plus hexavalent chromium were detected in unfiltered groundwater from the shallow, intermediate, and deep zones at the Site (Table 8). Nine of the 22 metals were detected in unfiltered groundwater at concentrations that exceed the NYSDEC AWQSGVs. These nine metals include antimony, beryllium, chromium, iron, lead, magnesium, manganese, nickel, and sodium. Twenty TAL metals were detected in filtered groundwater from the shallow, intermediate, and deep zones at the Site (Table 8). Six of the 20 metals were detected in filtered groundwater at concentrations that exceed the NYSDEC AWQSGVs. These six metals include antimony, chromium, iron, magnesium, manganese, and sodium.

In general, the metals groundwater quality data indicates:

- that the number of metals detected in shallow unfiltered or filtered groundwater monitoring wells was slightly greater in number than those detected in the intermediate and deep groundwater zones;
- that no clear trend was present regarding the level of the metals concentrations between shallow, intermediate, and deep groundwater zones; and
- that the level of metals concentrations in the unfiltered groundwater was higher than in the filtered groundwater. This result indicates that suspended particles (e.g., silt) were present in the unfiltered groundwater samples. Metals tend to sorb onto these particles, and the results of such analysis can be skewed (i.e., level of concentration increased) because of the presence of the suspended silt in the sample. Please note that the wells are screened in geologic units that either contain abundant silt or are comprised of silt.

As stated above, antimony, chromium, iron, magnesium, manganese, and sodium were the only metals detected in filtered groundwater at concentrations that exceed the NYSDEC AWQSGVs from the shallow, intermediate, and deep zones at the Site. Iron, magnesium, manganese, and sodium are metals that commonly occur in Long Island groundwater, and therefore, these metals are not considered representative of Site-related impacts (Buxton, 1981). Additionally, the level of concentrations of these four metals in the upgradient portion of the Site is similar to those in the downgradient portion of the Site. The antimony exceedance is considered anomalous because it was not detected in the corresponding unfiltered (i.e., total antimony concentration) groundwater sample.

Chromium was detected in unfiltered groundwater at concentrations that exceed its NYSDEC AWQSGV of 50 µg/L in the shallow groundwater zone at MW-2, MW-25, MW-29S, MW-31S, and MW-32S and in the deep groundwater zone at MW-34D (Table 8). However, the reported concentrations of this metal in filtered groundwater were not detected above the NYSDEC AWQSGVs in Monitoring Wells MW-2, MW-25, MW-32S, and MW-34D. Chromium was detected in the remaining wells (MW-29S and MW-31S) above the NYSDEC AWQSGVs in filtered groundwater in the eastern portion of former Building 1.

4.6.4 Cyanide

Cyanide was detected in unfiltered groundwater in the shallow zone at a concentration that exceeds its NYSDEC AWQSGV of 200 µg/L in only one monitoring well (MW-28) at 209 µg/L

(Table 8). In accordance with the IWP, cyanide was not analyzed in filtered groundwater during the June/July sampling round.

4.6.5 PCBs

PCBs were not detected in the shallow, intermediate or deep groundwater zones (Table 29).

4.7 Soil Gas Survey

Fifteen VOCs were detected in soil gas at the four locations of the Site where the highest concentrations of VOCs were previously detected in groundwater at the water table (Table 30). The VOCs detected include benzene, bromomethane, bromodichloromethane, carbon disulfide, carbon tetrachloride, chloroform, 1,1-dichloroethene, chloromethane, ethylbenzene, methylene chloride, styrene, PCE, TCE, toluene, and xylenes. In general, VOCs were detected at both the 3 ft and 6 ft depth intervals at each sampling location. The highest VOC concentration consistently detected in soil gas regardless of sample depth is TCE. The soil gas data indicates that the total VOC concentrations at 3 ft bls are marginally greater than those at 6 ft bls.

The soil gas data indicates that the locations where the highest concentrations of VOCs were detected are the same locations where the highest concentrations of total VOCs were detected in groundwater at the water table. The significance of the soil gas results (i.e., the level of concentrations) was evaluated as part of the risk assessment (see Section 7.0).

5.0 REMEDIAL ACTIONS

This section presents a description of several remedial actions (i.e., excavation and off-site disposal) implemented by Roux Associates' affiliated engineering firm, Remedial Engineering, P.C., during the SI for selected subsurface building structure material. A description of the characterization of these excavated materials, the volume of material excavated, management of these materials while onsite, and the offsite disposal information is also provided below. Additionally, information regarding other investigation-derived wastes (i.e., decontamination, development, and purge water) is also provided below.

The subsurface building structure material excavated for offsite disposal included a portion of the wood debris, and all of the green material and elemental mercury identified at the Site.

The wood debris, green material, and elemental mercury were characterized (total concentrations and/or using the TCLP) prior to offsite disposal for one or more of the following parameters: VOCs, SVOCs, metals, PCBs, pH, TPH, corrosivity, ignitability and reactivity.

Wood Debris Excavation and Disposal

The black stained wood debris identified in the concrete structure of the former plating area (Test Pit TP-16) was excavated and placed into 11 onsite 20 cubic yard roll-off containers, characterized, and disposed offsite accordingly (Plate 3). The roll-off containers were covered with a plastic tarp, and placed along the southern property boundary. No post-excavation samples were collected because the wood debris was contained within a concrete structure, which was identified to be intact (e.g., no visible cracks) during a field inspection.

Based on its characterization, the wood debris was determined to be non-hazardous. The 11 roll-off containers were transported by Maumee Express, Piscataway, New Jersey (3 roll-offs) and by Freehold Cartage, Freehold, New Jersey (8 roll-offs), and disposed at the Soil Safe, Inc. facility in Salem, New Jersey. This facility will recycle the wood material to be placed into an asphalt cold patch. A total of 118 tons of the wood debris were disposed. The characterization data and disposal documentation is provided in Appendix K.

Green Material Excavation and Disposal

The green material identified at Test Pit TP-16 at the former plating area and the pipes containing the green material at Test Pits TP-21 and TP-23 was excavated and placed into three 20 cubic yard roll-off containers, characterized, and disposed offsite accordingly (Plate 3). Prior to disposal, the roll-off containers were covered with a plastic tarp, and placed along the southern property boundary.

Post-excavation samples were collected from the sidewalls and bottom of the excavation at TP-16 and from the bottom of the excavations at TP-21 and TP-23. The post-excavation sample results (sidewall and bottom) at TP-16 indicate that VOCs were not detected at concentrations that exceed the NYSDEC RSCOs (Table 15). Six TAL metals (beryllium, cadmium, chromium, iron, nickel, and zinc) were detected in the post-excavation samples at concentrations that exceed the NYSDEC RSCOs (Table 19). Cadmium, chromium, and zinc were also detected above their respective Eastern USA Background Concentrations. The significance of these metals concentrations was addressed in the risk assessment (see Section 8.0).

The post-excavation sample results (bottom samples from beneath the open pipe ends) at TP-21 and TP-23 indicate that VOCs were not detected at concentrations that exceed the NYSDEC RSCOs (Table 15). Nine metals (arsenic, cadmium, calcium, chromium, copper, iron, magnesium, nickel, and zinc) were detected in the post-excavation samples at concentrations that exceed the NYSDEC RSCOs (Table 19). Six of the nine metals (cadmium, calcium, chromium, magnesium, nickel, and zinc) were also detected above their respective Eastern USA Background Concentrations. The significance of these metals concentrations was addressed in the risk assessment (see Section 8.0).

Based on its characterization, the green material was determined to exceed its USEPA Regulatory Level for chromium. The three roll-off containers were transported by Maumee Express, Piscataway, New Jersey, and disposed at the Casie Pro-Tank, Inc. facility in Vineland, New Jersey. This facility will thermally treat the green material, render the remains non-hazardous, and then be placed in a Subtitle D landfill. A total of 52.5 tons of the green

material were disposed. The characterization data and disposal documentation are provided in Appendix K.

Elemental Mercury Excavation and Disposal

The elemental mercury, mixed with green material and typical Site fill material, identified in the manhole along the eastern portion of the Site at Test Pit TP-23 (Plate 3) was excavated and placed into five 55-gallon capacity DOT-approved drums, characterized, and disposed offsite accordingly. Additionally, the sediment within the north and south pipes leading into the manhole was removed (i.e., approximately 5 ft into the pipes from the manhole). Please note that the elemental mercury was not observed in the sediment removed from the pipes. After the elemental mercury was removed, an inspection of the manhole was performed. The results of the inspection indicated that the manholes' structural integrity was intact (e.g., no visible cracks), and therefore, no post-excavation samples were collected for analysis below the base of the manhole. Groundwater samples were collected for analysis adjacent to the manhole on the downgradient side and further downgradient (i.e., approximately 60 ft downgradient from the manhole). The results indicate that mercury was not detected in groundwater.

The five 55-gallon capacity drums containing the elemental mercury, mixed with green material and typical Site fill material, were transported by Casie Pro-Tank, Vineland, New Jersey, and disposed at Casie's facility. This facility will thermally remove the elemental mercury (i.e., retort) for recycling, and then thermally treat the green material as stated above. The characterization data and disposal documentation are provided in Appendix K.

Decontamination/Development/Purge Water

Water from equipment decontamination, well development, and purging during sampling were containerized in two 10,000-gallon holding tanks. All decontamination, development, and purge water from monitoring wells located within the area of the Site where groundwater was known to contain impacts that exceed an SCG was placed in one tank (designated as Tank 1). All decontamination, development, and purge water from monitoring wells located outside the area of the Site with known groundwater impacts was placed in a second tank (designated as Tank 2).

The water in each tank was characterized for VOCs, SVOCs, Resource Conservation and Recovery Act (RCRA) metals, Total Suspended Solids (TSS), PCBs, TPH, corrosivity, reactivity and ignitability. The water contained in Tank 1 contained levels of Site-related impacts that exceed the SCGs, and was disposed offsite. The water in this tank was pumped into a transportation truck by Clean Water of New York, Inc., Staten Island, New York, and disposed at the Clean Water facility. A total of 6,350 gallons of decontamination, development, and purge water were disposed. This facility will treat the water for recycling. The characterization data and disposal documentation are provided in Appendix K.

The water contained in Tank 2 (approximately 2,000 gallons) was determined to not exceed the SCGs (i.e., it was considered clean) and was, based on the NYSDEC verbal approval, recharged to the ground in the east-central portion of the Site. The characterization data are provided in Appendix K.

6.0 PRELIMINARY IDENTIFICATION OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Consistent with the National Contingency Plan (NCP) (USEPA, 1990) and the "CERCLA Compliance with Other Laws Manual" (USEPA, 1988), applicable or relevant and appropriate requirements (ARARs) have been identified for the Site. Site characterization data obtained during the IWP and SI were used to identify potential chemical-specific, action-specific, and location-specific ARARs. Continued development of ARARs will be performed and provided in the Remedial Action Work Plan (RAWP).

In the following sections, an overview of ARARs is presented, the procedure used to identify ARARs is outlined, and ARARs that are Site-specific are presented.

6.1 Definition and Overview of ARARs

ARARs are defined as follows (40 CFR 300.5) (USEPA, 1990).

Applicable requirements are:

> *"Those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations, promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable."*

It is important to note that the subject Site is under the auspices of the NYSDEC Voluntary Cleanup Program, which excludes the ARAR process. The ARARs are provided in this report as a means of completeness.

Relevant and appropriate requirements are:

> *"Those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.*

Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate."

The three different types of ARARs are:

1. Ambient- or chemical-specific ARARs are health- or risk-based numerical values or methodologies. Chemical-specific ARARs establish the amount or concentration of a chemical that may be found in, or discharged to, the environment (USEPA, 1988);

2. Action-specific ARARs are usually technology- or activity-based requirements or limitations on actions taken with respect to hazardous wastes (USEPA, 1988); and

3. Location-specific ARARs set restrictions on the concentration of hazardous substances or the conduct of activities based on the specific location of the site (USEPA, 1988).

The terms "standards, criteria, and guidelines" (SCGs) include both those of the state and those of the United States to the extent that they are more stringent than those of the state (6 NYCRR 375-1.10).

In New York State, remedy selection at State CERCLA-type sites must also conform to standards and criteria that are generally applicable, consistently applied, and officially promulgated. The cleanup program at such sites should be designed with consideration being given to guidance determined, after the exercise of engineering judgment, to be applicable on a case-specific basis.

In addition to ARARs/SCGs, to-be-considered materials (TBCs) are also identified as part of the remedy selection process. TBCs are nonpromulgated advisories, criteria, or guidance developed by Federal or State governments that may be useful in developing CERCLA remedies (40 CFR 300.400[g][3]) (USEPA, 1990).

In connection with the RAWP, remedial action objectives will be established and will specify contaminants and media of concern, potential exposure pathways, and remediation goals. Initially, preliminary remediation goals will be determined based on readily available information, such as chemical-specific ARARs or other reliable information. Final remediation goals will be determined when the remedy is selected. Remediation goals establish acceptable exposure levels that are protective of human health and the environment and are developed by considerations listed below.

- ARARs, if available, and the following factors:
  - For systemic toxicants, acceptable exposure levels shall represent concentrations to which the human population can be exposed without adverse effect during a lifetime or part of a lifetime, incorporating an adequate margin of safety;
  - For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6}. The 10^{-6} risk level is used as the point of departure for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure;
  - Factors related to technical limitations such as detection/quantitation limits for contaminants;
  - Factors related to uncertainty;
  - Other pertinent information (40 CFR 300.430[e][2][i][A][1 through 5]) (USEPA, 1990);
  - Maximum Contaminant Level Goals (MCLGs) set at levels above zero are to be attained by remedial actions for groundwater or surface waters that are current or potential sources of drinking water, where MCLGs are relevant and appropriate under the circumstances of the release based on the factors in 40 CFR 300.400(g)(2). If an MCLG is determined not to be relevant and appropriate, or if an MCLG is set at a level of zero, the corresponding Maximum Contaminant Level (MCL) shall be attained where relevant and appropriate to the circumstances of the release based on the factors in 40 CFR 300.400(g)(2) (USEPA, 1990);
  - In cases involving multiple contaminants or pathways where attainment of chemical-specific ARARs would result in cumulative risk in excess of 10^{-4}, criteria listed at 40 CFR 300.430(e)(2)(i)(A) (USEPA, 1990) may be considered when determining the cleanup level to be attained;
  - Water quality criteria established under Sections 303 or 304 of the Clean Water Act are to be attained where relevant and appropriate under the circumstances of the release;
  - An alternate concentration limit may be established in accordance with CERCLA Section 121(d)(2)(B)(ii); and
  - Environmental evaluations are to be conducted to assess threats to the environment, especially sensitive habitats and critical habitats of species protected under the Endangered Species Act (40 CFR 300.430[e][2][i][B through G]) (USEPA, 1990).

6.2 Procedure for Identifying ARARs

The process of identifying potential ARARs/SCGs and TBCs consisted of the following activities.

- Pertinent facts concerning the chemicals detected in Site media were identified.
- Federal regulations and State SCGs were reviewed to identify potential ARARs.
- The "CERCLA Compliance with Other Laws Manual" (USEPA, 1988) was reviewed for lists of all potential chemical- and location-specific Federal ARARs. Requirements contained in these lists, together with any requirements promulgated subsequent to the issuance of the "CERCLA Compliance with Other Laws Manual" were considered during the identification of potential Federal chemical- and location-specific ARARs for the Site. The list of potential State ARARs, together with any requirements promulgated subsequent to the publication date of the list, were considered during the identification of potential State chemical- and location-specific ARARs for the Site.
- Provisions of each potential ARAR were reviewed to obtain pertinent information, including the following:
  - substances regulated by the requirement;
  - types of facilities regulated by the requirement;
  - locations regulated by the requirement; and
  - persons or entities regulated or affected by the requirement.
- The concentrations of contaminants detected in on-Site media and facts concerning the type and location of facility were compared to the provisions of the identified potential ARARs/SCGs. If all pertinent provisions for a requirement were met, the requirement was deemed applicable. If all pertinent provisions for a requirement were not met, the following comparison of Site-specific factors was made to determine if a requirement was both relevant and appropriate:
  - the purpose of the requirement and the purpose of the action at the Site;
  - the medium regulated or affected by the requirement and the medium contaminated or affected at the Site;
  - the substances regulated by the requirement and the substances found at the Site;
  - the type of place regulated and the type of place affected by the release;
  - the type and size of structure or facility regulated and the type and size of structure or facility affected by the release; and

- any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resource at the Site (40 CFR 300.400 [g] [2] [i through iii and vi through viii]) (USEPA, 1990).

A requirement may have been determined to be potentially relevant because it closely matched the Site on some of the factors listed above, but may have been determined to be not appropriate because Site circumstances differed significantly on other key factors. Portions of a requirement may be relevant and appropriate even if a requirement in its entirety is not (USEPA, 1988).

In addition to ARARs/SCGs, TBCs were also identified from the list contained in the "CERCLA Compliance with Other Laws Manual" (USEPA, 1988), as well as from TBCs issued after publication of the "CERCLA Compliance with Other Laws Manual."

6.3 Potential Chemical-Specific ARARs/SCGs and TBCs

The data developed during the IWP and SI was used to further define the potential chemical-specific ARARs/SCGs and TBCs for each medium listed in this report. The chemical specific ARARs/SCGs and TBCs for soil, groundwater, subsurface building structure material, and soil gas are discussed below.

6.3.1 Soil

The NYSDEC Recommended Soil Cleanup Objectives (RSCOs) are described in the Technical and Administrative Guidance Memorandum (TAGM) No. 4046, Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 1994, which was amended in a memorandum dated August 2001 to include compounds that were identified in the NYSDEC STARS Memo #1. The ARARs/SCGs used to evaluate the soil data from the IWP and the SI are the RSCOs. The RSCOs are provided in the soil analytical data tables.

The USEPA Risk Based Concentrations (RBCs) are used for chemical screening during baseline risk assessment. As discussed in Section 7.1.1, the USEPA RBCs are utilized for soil screening criteria. Although the NYSDEC has developed RSCOs, the RSCOs are not risk-based concentrations and have no application to screening for potential risks from soil exposure at a residential site.

6.3.2 Groundwater

Pursuant to the New York Environmental Conservation Law, Article 17, it is declared to be public policy of the State of New York to maintain reasonable standards to safeguard the waters of the state from pollution by preventing any new pollution and abating existing pollution to protect public health and permit management of the groundwater for its best usage.

The New York Public Water Supply Regulations (10 NYCRR 5-1) regulate the water systems within the state that supply drinking water that may affect public health. This regulation sets Maximum Contaminant Levels (MCLs) or MCL Goals (MCLGs) for select inorganic and organic constituents listed under the federal regulations (40 CFR 141.11 through 141.91 and 143.3). The NCP requires that where relevant and appropriate under the circumstances of the release, non-zero MCLGs and MCLs are to be attained for remedial actions for groundwater that is currently or a potential source of drinking water (300 CFR 430[e][2][i][b and c]) (USEPA, 1990). MCLs and MCLGs are considered potentially relevant and appropriate requirements.

New York State water classifications and quality standards for groundwater are the maximum allowable concentrations which may be tolerated without creating a threat to human health, or which would otherwise render the groundwater unsuitable for its intended best usage (6 NYCRR 700-704). Ambient Water Quality Standards and Guidance Values (AWQSGVs) for toxic and non-conventional pollutants are presented in the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) (1.1.1). The authority for these values is derived from Article 17 of the Environmental Conservation Law and 6 NYCRR Parts 700 through 705, Water Quality Regulations. The standards and guidance values are the maximum allowable concentrations that may be tolerated to protect human health and drinking water sources and are referenced to protect the best usage of the water body as specified by the water classifications at the location of the discharge and at locations that may be affected by such discharge. The AWQSGVs are provided in the groundwater analytical data tables.

The groundwater at the Site is classified as GA (fresh groundwater). Fresh groundwater is defined as having chloride concentrations less than or equal to 250 mg/l or total dissolved solids (TDS) less than or equal to 1,000 mg/L (6 NYCRR Part 700.1). The GA classification is

intended for groundwater that is considered suitable for drinking in its natural state, but may require treatment to improve quality related to natural conditions. The NYSDEC Water Quality Standards for GA groundwater are considered applicable due to the media and type of substances detected at the Site. All groundwater samples were compared to the Class GA ambient water quality standards.

6.3.3 Subsurface Building Structure Material

As discussed previously, the subsurface building structure material is comprised of impacted solid and liquid material associated with identified subsurface structures. It should be noted that the solid and liquid material is not classified as soil or groundwater, respectively.

There are no specific ARARs/SCGs for solid subsurface building structure material that will be left in place. As a conservative approach, due to the intended future use of the Site as a residential development, the NYSDEC RSCOs have been used to evaluate the subsurface building structure solid material data.

Similarly, there are no specific ARARs/SCGs for evaluating subsurface building structure liquid material data. Therefore, as a conservative approach the NYSDEC AWQSGVs (TOGS 1.1.1) will be used to evaluate the subsurface building structure liquid material data. As discussed previously, the AWQSGVs are the maximum allowable concentrations that may be tolerated to protect human health and drinking water sources and are referenced to protect the best usage of the water body as specified by the water classifications at the location of the discharge and at locations that may be affected by such discharge.

6.3.4 Soil Gas

There are no local, state, or federal regulatory SCGs used to evaluate soil gas data. However, for risk assessment purposes, the NYSDEC Ambient Annual–averaged-based Guideline Concentrations (AGCs) are utilized as screening criteria during baseline risk assessment as a measure of determining the long-term exposure of contaminants. As discussed in Section 7.0, these guidelines were developed to protect human health and the environment from effects that may be associated with long-term exposure to contaminants.

6.4 Potential Action-Specific ARARs/SCGs and TBCs

The action-specific ARARs/SCGs will be developed in the RAWP where remedial action objectives (RAOs), general response actions (GRAs) and remedial alternatives will be developed.

6.5 Potential Location–Specific ARARs/SCGs and TBCs

The NYSDEC Division of Water TOGS (2.1.3) Primary and Principal Aquifer Determinations provides provisions regarding determination of whether an aquifer is considered a Primary Water Supply Aquifer or a Principal Aquifer. This guidance is considered relevant and potentially appropriate since the Port Washington Aquifer is classified as a Primary Water Supply aquifer.

The Federal Floodplain Management Act (16 USC 661 et seq.) evaluates adverse effects associated with direct and indirect development of a floodplain. This act is considered potentially relevant and appropriate for future use, including potential remediation and redevelopment of the Site. This regulation is considered applicable since the Site is located within the 100-year floodplain.

The EPA regulation for the Statement of Procedures on Floodplain Management and Wetlands Protection (40 CFR 6 Appendix A) carries out the provisions of Executive Order 11988 (Floodplain Management), which requires action to avoid adverse effects, minimize potential harm, and restore and preserve natural floodplains. This regulation is considered applicable since the Site is located within the 100-year floodplain.

EPA regulation 40 CFR 264.18 states location standards for owners and operators of hazardous waste treatment, storage, and disposal facilities within a 100-year floodplain must be designed, constructed, operated and maintained to prevent washout of any hazardous waste by a 100-year flood. This regulation is considered applicable since the Site is located within the 100-year floodplain.

The Coastal Zone Management Act (16 USC 1451 et seq.) provides provisions regarding land use in a coastal zone and the uses of adjacent lands that drain into the coastal zone that may significantly affect the quality of coastal waters and efforts to control coastal water pollution

from land activities and requires activities to be conducted in a manner consistent with approved State management programs. This regulation is considered potentially appropriate since the Site is located in a coastal area along Manhasset Bay.

7.0 RISK ASSESSMENT

The purpose of the human health risk assessment (RA) is to evaluate whether residual concentrations of VOCs, SVOCs, TAL metals, and cyanide in soil, groundwater, soil gas, and material from within subsurface building structures could pose a potential risk to future receptors at the Site.

The RA was prepared based on guidelines provided by the USEPA in, "Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part A) Interim Final" (RAGS) (USEPA, 1989) and supplemental guidance documents pertaining to RAGS. The proposed future land use of this Site is for residential purposes; therefore, the USEPA recommends that a conservative health protective approach be adopted that includes consideration of increased potential risk from chemical exposures due to behavior patterns that are consistent with the intended land use. Higher sensitivities to be considered include children in contact with soil and persons who derive some of their diet from homegrown produce. Data used in the development of exposure estimates were obtained from monitoring events implemented in accordance with the Investigation Work Plan (IWP) and the Site Investigation (SI).

In accordance with the USEPA guidelines, the RA used a stepped approach for evaluating the potential future risks for each exposure scenario. First, chemicals with a frequency of detection of less than 5 percent in each medium were eliminated from further evaluation. Secondly, the concentrations of detected chemicals retained from the first step were compared to appropriate published screening criteria. The site-related constituents that were retained by the screening (i.e., constituents with one or more concentrations that exceed the screening criteria) were subjected to a rigorous evaluation using USEPA algorithms to calculate the potential risk to assumed receptors. The calculated risks were then compared to USEPA recommended risk values (i.e., hazard quotients [HQs] for noncarcinogenic chemicals, and Incremental Lifetime Cancer Risks [ILCRs] for carcinogenic chemicals).

The RA is presented in its entirety in Appendix H; the following is a brief description of the methodology, which includes the data evaluation, and the development of potential pathways of exposure. Following the methodology is a summary of potential risk estimates for Site-related

receptors and activities, a brief analysis of the uncertainties associated with these estimates, and conclusions.

7.1 Methodology

The initial step in the RA was to consolidate the data into a format suitable for conducting the RA, and to identify which chemicals, if any, are Site-specific chemicals of potential concern (COPCs) in the environmental media.

7.1.1 Selection of Chemicals of Potential Concern

Media analyzed at the Site include soil, groundwater, materials from within subsurface building structures (as defined in Section 4.5.1 of the SIRR), and soil gas. Selection of COPCs in environmental media present at the Site was based on both the frequency of detection of each chemical in each medium and a screening methodology comparing Site concentrations to relevant criteria. Furthermore, the few liquid samples that were obtained from within subsurface structures were not considered as part of Site-wide groundwater. This was primarily due to the different sampling collection method (i.e., grab) and the limited number of samples collected. In addition, because there were no apparent differences between the concentration levels or analytes detected in these grab samples and those collected from the monitoring wells, the results of the liquid sample analysis were incorporated into the RA by default. Therefore, only the analytical data associated with the July 2001 groundwater samples collected from monitoring wells were used in the RA.

In accordance with USEPA guidelines, chemicals with a frequency of detection of 5 percent or less in all samples within a given medium were eliminated from further consideration in the RA (USEPA, 1989). The maximum concentrations of the remaining chemicals were compared to media-specific screening criteria. These media-specific screening criteria were the risk-based concentrations (RBCs) developed by Region III of the USEPA (1993, 2001a) for soil and solid subsurface structure materials, and the NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGVs) (NYSDEC, 2000) for groundwater, and Annual Guideline Concentrations (AGCs) (NYSDEC, 1997) for the soil gas. The guidance from USEPA Region III was used because Region II of the USEPA has not issued specific RA guidance, but instead recognizes the Region III guidance documents.

Although the NYSDEC has developed RSCOs for soil, these are not necessarily risk-based concentrations. Of the 34 organic constituents identified in soil and retained as COPCs for risk-based screening using the RBCs only four of them have RSCOs that were actually based on direct risk criteria. Of these four constituents, three are PAHs (benzo[a]anthracene, benzo[a]pyrene and dibenzo[a,h]anthracene) that were retained for detailed analysis in the risk assessment using the Region III RBCs (USEPA, 2001) and would similarly have been retained if RSCOs had been used. The fourth constituent was bis(2-ethylhexyl)phthalate, which was not retained as a COPC using the Region III RBC and also would not have been retained using the appropriate RSCO. This demonstrates a good correlation between the RBCs and true risk-based RSCOs.

Of the remaining 30 constituents, 18 of them have RSCOs that were based on values developed for transfer of the constituent to groundwater and for the other 12 chemicals there was either no RSCO available or the derivation of the value was not evident. Thus, the majority of the available RSCOs were developed to be protective of groundwater quality, and consequently have no application to screening for potential risks from soil exposure at a residential site.

In contrast, the residential RBCs have been developed by USEPA Region III to provide a risk-based screening tool specifically for potential exposure to soil. Thus, the use of the RBCs provides a better and more consistent mechanism for screening for COPCs than the RSCOs.

If the maximum concentration of a chemical exceeded its respective screening criteria (or if no criteria exists for a given chemical), that compound was retained for further evaluation in the RA.

7.1.1.1 Soil

Surface soil, defined as the soil horizon from ground surface to 2 ft below land surface (bls), can theoretically be encountered as fugitive dusts, through direct contact during typical playground activities, or while gardening or performing other types of yard work. The surface soil samples collected were analyzed for VOCs, SVOCs and TAL metals. Additional samples were collected in the 0 to 2 inches bls depth interval and analyzed for VOCs and TAL metals.

Subsurface soil could potentially be encountered as a result of deep soil moving activities, such as digging associated with limited construction or installation of utility lines. The subsurface soil samples were collected at discrete horizons within the 0 to 12-ft depth interval and were analyzed for VOCs, SVOCs and TAL metals.

Based upon the toxicity screening described above (see Section 7.1.1), six chemicals were selected as COPCs. The COPCs include five polynuclear aromatic hydrocarbons (PAHs) and arsenic, and are indicated by an asterisk in Table H-1.

7.1.1.2 Groundwater

Three possible exposure pathways were initially considered for exposure to groundwater. Based on the intended use of the property for residential purposes these pathways included:

- exposure to groundwater drawn from an irrigation well;
- exposure to vapors migrating from groundwater into the enclosed spaces of residential buildings; and
- direct contact with groundwater by construction workers.

During the course of the Site investigation, it was observed that deeper (intermediate zone) monitoring wells provided a maximum flow rate of approximately 1 gallon per minute, while the shallow wells had a flow rate of 3 to 5 gallons per minute. While it is theoretically possible that irrigation wells could be installed, from a practical standpoint the likelihood of even one irrigation well being installed is minimal because the rate of water production is relatively low. Reasonably priced city water will be provided to each proposed residence such that installation of an irrigation well is highly unlikely. Additionally, the proposed plot size of the future residences is small (the size of the front yard is proposed to be approximately 20 ft by 20 ft, while the size of the back yard is proposed to be approximately 40 ft by 35 ft), therefore, the installation and operation of an irrigation well would not be cost effective. As such, Roux Associates does not believe an irrigation exposure pathway is needed.

The groundwater exposure scenario considered that a theoretical exposure could occur through migration of vapors originating from chemicals dissolved in groundwater through the soil and into enclosed spaces of residential buildings. In addition, while there are no known users of the Site groundwater, the scenario also considered a theoretical direct human contact with the groundwater at the Site during construction activities. Therefore, the samples included in the RA were all those analyzed for VOCs, SVOCs, and unfiltered metals. Metals data associated with unfiltered groundwater samples were considered to be most representative of the type of groundwater to be encountered by potential receptors (i.e., construction workers) through direct contact.

Based upon the screening described above, twenty-three chemicals were selected as COPCs in groundwater samples collected from the monitoring wells. These chemicals included chlorinated hydrocarbons, PAHs, and several metals and are marked with an asterisk on Table H-2.

7.1.1.3 Subsurface Building Structures

The primary subsurface building structures at the Site included six former leaching structures and a former septic chamber. Three of these structures were observed by Roux Associates to be approximately 10 ft in diameter and constructed of concrete hollow blocks from approximately 3 ft bls to the water table. Two structures were observed to be approximately 3 ft in diameter and constructed of brick at the top underlain with concrete hollow blocks from approximately 3 ft bls to the water table. The sixth structure was approximately 10 ft in diameter and constructed of concrete hollow blocks from approximately 3 ft bls to the water table. All structures appeared to contain fill and/or wood debris. In addition, a former septic chamber was identified at the Site. The former septic chamber was constructed of concrete, and its dimensions are approximately 30 ft in length by 20 ft in width by 10 ft in depth. The top of the former septic chamber was observed to be approximately 3 ft bls. The septic chamber was also observed to be partially filled (approximately half full) with liquid and sediment. A more detailed description of the subsurface building structures can be found in Section 4.5.1 of this report.

Because subsurface building structures are immobile and assuming the solid material within them would also remain in place, the structures were divided into four specific areas (Appendix H, Section 3.1.3). The solid materials are unlikely to be encountered except in the

limited context of ground invasive activities and any such theoretical encounter would occur with limited frequency. Therefore, as a conservative health protective measure, each area was screened using the residential soil RBCs as was done with the soil in Section 7.1.1.1.

Based upon the screening criteria described above, a total of twelve chemicals were selected as COPCs across the entire subsurface structure area. Details regarding area specific COPCs for the individual areas are given in Appendix H Section 3.6.3. These chemicals, which include PAHs and metals, are marked with an asterisk on Tables H-3 through H-6.

7.1.1.4 Soil Vapor

A soil vapor exposure scenario was constructed around the theoretical risk of exposure through migration of vapors originating from chemicals in soil and groundwater through the soil and into enclosed spaces of residential buildings. Because groundwater was determined to contain VOCs in certain areas of the Site, soil vapor samples were collected and analyzed for VOCs. The soil gas survey consisted of twenty samples each at 3 ft and 6 ft bls (totaling 40 samples) that were located at four locations (ten samples per location) where the four highest groundwater VOC concentrations in the shallow groundwater were detected.

There were ten chemicals that were selected as COPCs in the soil vapor. These chemicals are marked with an asterisk on Tables H-7 and H-8.

7.1.2 Determining Appropriate Exposure Point Concentrations for the Chemicals of Potential Concern

Following the determination of the COPCs, the next step is to determine the appropriate chemical media concentration for use in the intake equations associated with the exposure assessment. Current guidance from the USEPA (USEPA, 1992a; Personal communication, 1996) directs the use of the average and 95 percent upper confidence limit (UCL) on the mean. The arithmetic mean is used as a concentration term in risk assessments because the average concentration is a reasonable estimate of the concentration likely to be contacted by a receptor over time (USEPA, 1989; 1992a).

The 95 percent UCL is used in a risk assessment to evaluate an upper bound risk associated with a Site. In a statistical evaluation, the 95 percent UCL uses all the available data to provide an

upper bound for the mean. In most circumstances, it is anticipated that the UCL of the mean is higher than the arithmetic mean, but falls within the general distribution of the data set. However, at the Thypin Site analysis of the comprehensive data set showed that in many cases the calculated UCLs for the COPCs actually exceeds the maximum concentration at the Site. Clearly, use of the 95 percent UCL under these circumstances would create an unrealistic situation that implies that any contamination at the Site is much worse than the actual situation.

In order to illustrate an extreme upper bound of risk in a consistent manner, the maximum concentration was used as a surrogate for the 95 percent UCL. In reality, the use of a single maximum concentration is **not** representative of Site conditions either. Therefore, Roux Associates would like to clarify that the use of the maximum Site concentration of a constituent is not an appropriate exposure point concentration to assess the risk at the Thypin Site. Rather, the maximum concentration was used along with extremely conservative exposure assumptions to illustrate an upper bound condition that was not likely to be exceeded under almost any circumstances.

As an example of the conservatism incorporated into the use of a maximum concentration, a careful review of the comprehensive data set (i.e., from 33 data points) demonstrates that in all cases the maximum concentration exceeds the second highest concentration by a factor of at least 2.5 to 5. Thus, the maximum concentrations are outliers and should not be relied on to attribute an overall Site risk. Roux Associates would like to stress that selecting a single value (the maximum concentration) out of the comprehensive data set that were distributed across the Site is truly not representative of Site conditions but rather was used to evaluate very conservatively conditions that are not likely to occur on any consistent basis.

7.1.3 Pathways for Exposure to Chemicals of Potential Concern

The purpose of the exposure assessment is to identify potential receptors, evaluate relevant exposure pathways, and estimate potential intakes by receptors resulting from these pathways. Exposure pathways are defined and identified in terms of sources and receiving media, fate and transport in the release (source) media, and exposure points and exposure routes.

7.1.3.1 Receptor Analysis

Based upon the proposed future use of the Site for the construction of condominiums, the potential for exposure of residential receptors was recognized and needs to be considered. There is a possibility of direct and/or indirect contact with both soil and indirect contact with groundwater through vapor intrusion into residences, consequently USEPA protocols recommend that residential occupants (both children and adults) be evaluated as potential receptors at the Site. The analysis might also cover theoretical exposure through outdoor construction activities to chemicals at the Site during Site development activities. Thus, USEPA protocols recommend scenarios where construction personnel are evaluated as potential receptors at the Site.

Thus, two primary receptors were considered for the relevant exposure scenarios described in this RA and were:

1. Building occupants (Residential scenario); and
2. Construction workers (Construction scenario).

The residential receptors are defined as three separate populations for modeling purposes. The child was designated as between the ages of birth to 6 years in the indoor air exposure scenario. For the purpose of outdoor exposures (recreational), it was assumed that children between the ages of birth to 1 have no contact with soil. The youth was designated as between the ages of 6 and 18 years, while an adult was considered in excess of 18 years of age.

Two approaches were used to develop a range of potential exposures at the Site. These would involve the concepts of a Plausible Average Exposed Individual (PAEI) and a Reasonable Maximum Exposed Individual (RMEI). The PAEI considers the exposures consistent with the most likely residential and construction activities at the Site. As part of the exposure assessment, the PAEI assumptions include the use of the arithmetic mean concentrations for the COPCs in environmental media at the Site and modeling assumptions considered associated with an average exposure. The RMEI describes a highly conservative, health protective, upper bound estimate of any potential exposures at the Site. As described in Section 7.1.2, the RMEI assumptions included the use of the maximum concentration for each COPC identified in the

environmental media at the Site in concert with extremely conservative, health protective, modeling assumptions. Presenting a range of exposures using multiple risk descriptors such as central tendency (mean) and high end of individual risk is consistent with USEPA guidance (USEPA, 1992a; 1995b), however, the high end of individual risk estimated at this Site represents conditions that have no chance of occurring on any basis that could lead to an impact to human health.

7.1.3.2 Pathway Analysis

The purpose of the pathway analysis is to describe mechanisms by which a potential receptor may come into contact with the chemicals present in any given environmental medium.

Soils at the Site must be considered as a transport medium for chemicals. There is a theoretical risk of residents (receptors) coming into contact with chemicals present in the soil through inhalation of fugitive dusts while conducting yard work, or ingesting soil particulates during various outdoor activities. Because of the future proposed use of the Site for residential purposes, the USEPA recommends that consideration be given to the theoretical risk of residents being exposed to chemicals through ingestion of homegrown fruits and vegetables that have accumulated Site-related chemicals from the soil.

Consideration must also be given to the theoretical risk of construction workers (receptors) coming into contact with chemicals present in the soil during digging activities or by conducting other outdoor construction tasks such as soil moving activities that have the potential to generate fugitive dusts. Chemicals present in the soil would also theoretically be present in fugitive dusts derived from the soil. Exposure of offsite residents from fugitive dust was identified as a theoretical exposure scenario; however, any consideration of this pathway was reserved for consideration only if the risk to onsite construction workers was found to be unacceptable.

Groundwater at the Site may be a transport medium for chemicals, and exposure could theoretically result from indirect and/or direct contact. Evaluation was made of theoretical migration of vapors originating from chemicals dissolved in groundwater through the soil and into enclosed spaces of the residential buildings. In addition, because there are no users of the groundwater at the Site, direct human contact with the groundwater at the Site was only

evaluated in the context of construction activities. Depth to groundwater at the Site ranges from 8 ft to 12 ft bls, depths at which exposure to groundwater at its shallowest depth could occur to receptors during ground intrusive activities.

The scenario considered theoretical construction workers (receptors) coming into contact with chemicals present in the solid materials contained within the subsurface building structures during digging for and construction of building foundations. The scenarios evaluated theoretical exposure to fugitive dusts generated by ground invasive activities and the prospect that chemicals present in the solid material would be present in fugitive dusts derived from the soil material.

Soil gas concentrations serve as a potential verification of the vertical migration of VOCs originating in Site groundwater. The scenario evaluated theoretical direct exposure route to residents through inhalation of indoor air following migration through subsurface soil and into future residential dwellings.

7.1.3.3 Pathway Selection

The theoretical exposure routes associated with the receptors and pathways considered in the RA are:

- Inhalation of indoor air vapors originating from groundwater chemicals and through measured soil gas;
- Ingestion, inhalation, and dermal absorption of chemicals in soil particulates and/or solid materials contained within subsurface building structures;
- Ingestion of chemicals through homegrown fruits and vegetables;
- Dermal absorption of chemicals in groundwater; and
- Inhalation of chemical vapors originating from exposed groundwater.

Following a determination of relevant exposure pathways and exposure routes, chemical-specific exposures for human receptors, also called intakes, are estimated. Intakes are expressed in terms of the mass of substance in contact with the body per unit body weight (mg/kg) or the mass of substance in contact with the body per unit body weight per unit time (mg/kg/day). The

chemical intakes are estimated using equations that include variables for exposure concentration, contact rate, exposure frequency, and body weight. Receptor specific parameters unique to each scenario are given in Tables H-12 to H-18. Details regarding equations and generic assumptions associated with the routes of exposure are provided in Appendix H, Section 4.3.

A model for subsurface vapor intrusion into buildings, originally developed by Johnson and Ettinger in 1991 and modified by the USEPA in 2000, was used to estimate potential airborne concentrations of VOCs inside buildings associated with the presence of VOCs in groundwater and soil gas beneath potential future buildings (USEPA, 2000a). The model utilized the soil gas concentrations measured at the Site during the soil gas survey as input values for the resultant indoor vapor concentrations calculated by the model. A module within the TScreen model (USEPA, 1995a) was used for predicting vapor concentrations associated with exposed groundwater during excavation activities. Equations used to estimate chemical concentrations in homegrown produce following uptake from soil were obtained from USEPA (USEPA, 1996a) and from the Hazardous Waste Identification Rule (HWIR) 1999 Farm Food Chain Module (USEPA, 1999). The USEPA (1996b) has developed the methodology for assessing risks associated with non-residential adult exposures to lead in soil and has been employed in this RA. All other exposures (e.g., dermal absorption, ingestion, and inhalation) were estimated using equations presented in Risk Assessment Guidance for Superfund (RAGS) (USEPA, 1989).

7.2 Summary of Risk Estimates

Health risk estimation quantitatively defines the general magnitude and range of human health posed by a defined set of theoretical exposure scenarios. The precision of such estimates is limited by the size of the database and the assumptions that support the mathematical estimations of intake and effect. The uncertainties associated with estimating human health risks that may result from any chemical exposure include the following:

- The extrapolation of toxic effects observed at the high intakes necessary to conduct animal studies to effects that might occur at lower, environmentally relevant intakes.
- The extrapolation from toxic effects in animals to toxic effects in humans (i.e., responses of animals may be different from responses of humans).

Risk characterization integrates information on the presence of chemicals in Site-related media, the known toxicity of those chemicals, and the Site-specific exposure scenarios. The exposure scenarios described in the exposure assessment are based upon the most likely pathways by which exposure could occur to defined receptors.

The approach taken in this part of the RA uses extremely health-protective assumptions that are designed to overestimate potential risks. This approach for managing uncertainties has a magnifying effect on the outcome of the RA process. Because each conservative step builds on the previous one, the overall result of making biased assumptions likely overestimates theoretical risk. This approach compensates for RA uncertainties that may result in underestimation of risk and, therefore assures that the overall assessment provides an ample margin of safety.

7.2.1 Hazard Quotients

Acceptable daily intakes for these compounds are derived from relevant human and/or animal dose-response data. These acceptable intakes may be expressed in a variety of ways, such as acceptable intake-chronic (AIC) or oral reference doses (RfDs).

Oral reference doses (RfDs) are commonly derived by applying a safety factor to the estimated "no observed adverse effect level" (NOAEL) observed in animal experiments. The RfD data are derived from quantitative information available from studies in animals (or observations made in human epidemiological studies) on the relationship between intake and noncarcinogenic toxic effects, and are designed to be protective of all individuals, including sensitive populations.

A Hazard Quotient (HQ) is defined as the ratio between the daily intake of a chemical and the oral RfD for that chemical (USEPA, 1989). The HQ does not define dose-response relationships and is not a direct estimate of risk. The HQ is a theoretical numerical indication of the nearness to acceptable limits of exposure or the degree to which acceptable exposure intakes are exceeded. As this quotient approaches unity, concern for the potential hazard increases. Exceeding unity does not in itself imply a potential hazard; however, it does suggest that a given exposure scenario should be evaluated using more realistic, and Site-specific assumptions.

7.2.2 Incremental Lifetime Cancer Risk

Incremental lifetime cancer risk (ILCR), also referred to as excess cancer risk, is defined as the estimated increased risk that occurs over an assumed average lifespan of 70 years as the result of exposure to a specific known or suspected carcinogen (USEPA, 1989). It is expressed in terms of additional cancers, above the normal background, that might be anticipated as a result of specific exposure to an external influence such as exposure to a carcinogen via ingestion, inhalation or absorption. Thus, an ILCR of one in one million (1E-6) may be interpreted as an increase in the baseline (background) cancer incidence from 333,000 persons per million population to 333,001 persons per million population (American Cancer Society, 1994). The Food and Drug Administration (FDA) considers an ILCR of one in one million to be a *de minimis* or insignificant risk (FDA 1985a, 1985b). Similarly, the USEPA uses an incremental lifetime risk range of 1E-4 (one in ten thousand) to 1E-6 when considering and selecting potential remedial alternatives in site cleanups (40 CFR Section 300.430 55 Federal Regulation 8848).

7.2.3 Residential Receptor Risk Characterization

Two theoretical exposure scenarios were considered in the residential exposure assessment to estimate potential risk to children, youths, and adults. The PAEI scenario represents an average potential exposure for each receptor, while the RMEI represents a maximum potential exposure. Relevant pathways included exposure to chemicals in indoor air (from groundwater and soil gas), during recreational activities, gardening, and consumption of homegrown produce. The results for each activity-related pathway are presented below.

7.2.3.1 Residential Indoor Air Exposure to Chemicals in Groundwater

Appendix H Attachment 1 contains the estimated indoor air chemical concentrations predicted by the Johnson and Ettinger (1991) model for groundwater and the estimated risks associated with residential exposure to these chemical concentrations are summarized in Table H-19 and H-20.

As shown in Table H-19, the estimated HQs for residential exposure to VOCs through inhalation of indoor air are all nearly two orders of magnitude below unity (1.0) for both the PAEI and RMEI scenarios. Thus, the presence of VOCs in groundwater at the Site does not negatively impact

indoor air with regard to noncarcinogenic health effects and potential exposure to these VOCs via inhalation of vapors from groundwater should not present any risk of noncarcinogenic health effects to future residents.

As shown on Table H-20, the estimated ILCRs for residential exposure to VOCs through inhalation of indoor air are all below *de minimis* (1.0E-6) for both the PAEI and RMEI scenarios, with the exception of trichloroethene (1.01E-6) in the adult RMEI exposure scenario. Because this ILCR is at a risk level considered insignificant, the presence of VOCs in groundwater at the Site does not negatively impact indoor air with regard to carcinogenic health effects and potential exposure to these VOCs via inhalation of vapors from groundwater should not present any risk of carcinogenic health effects to future residents.

7.2.3.2 Residential Indoor Air Exposure to Chemicals in Soil Gas

Appendix H Attachment 2 contains the estimated indoor air chemical concentrations predicted by the Johnson and Ettinger soil gas model (Johnson and Ettinger, 1991; USEPA 2000) and the estimated risk associated with residential exposure to these chemical concentrations are summarized in Tables H-21 through H-24.

Measured soil gas concentrations and the corresponding estimated indoor air VOC concentrations for each of the two soil gas sampling intervals are summarized in Table H-89. The estimated indoor air VOC concentrations for two chemicals (1,1-dichloroethene and trichloroethene) are slightly in excess of the NYSDEC AGC for the RMEI exposure scenario. Comparison of the estimated indoor air concentrations to the NYSDEC AGC is a first step to determine whether a potential risk could be present. This first step is an extremely conservative approach because the AGC values are derived assuming that an individual is exposed at a theoretical specific concentration continuously over an entire lifespan of 70 years. Clearly there are multiple unrealistic assumptions that are incorporated into the derivation of the AGC.

If the estimated indoor air concentrations, as compared to the NYSDEC AGCs, indicate that a potential theoretical risk could be present, the USEPA recommends that further evaluation be performed using Site-specific exposure scenarios. This further evaluation (i.e., second step in

the process) was conducted using exposure algorithms described in RAGS by the USEPA (1989).

As shown in Tables H-21 and H-23, the estimated HQs for residential exposure to VOCs through inhalation of indoor air are all nearly two orders of magnitude below unity (1.0) for both the PAEI and RMEI scenarios. Thus, the presence of VOCs migrating from groundwater as measured by the soil gas at the Site does not negatively impact indoor air with regard to noncarcinogenic health effects. The potential exposure to these VOCs via inhalation of chemical vapors as indicated by the actual soil gas concentrations should not present any risk of noncarcinogenic health effects to future residents.

Tables H-22 and H-24 presents the range of estimated ILCRs (i.e., PAEI and RMEI) for children and youths between the ages of birth to 18 years (and children and youths combined) and adults using the model described above and associated with average and maximum exposure to air vapor concentrations derived from the 3-foot and 6-foot soil gas sampling intervals.

As shown in Tables H-22 and H-24, the estimated ILCRs for residential exposure to VOCs through inhalation of indoor air are all below *de minimis* (1.0E-6) for both the PAEI and RMEI scenarios. Thus, the presence of VOCs migrating from groundwater as measured by the soil gas at the Site does not negatively impact indoor air with regard to carcinogenic health effects and potential exposure to these VOCs via inhalation of vapors from groundwater should not present any risk of carcinogenic health effects to future residents.

7.2.3.3 Residential Recreational Exposure to Chemicals in Soil

Under all recreational scenarios, residents were assumed potentially exposed to Site soil. Relevant pathways include dermal absorption, ingestion, and inhalation of chemicals in soil.

As shown in Tables H-53, H-54, H-57, H-58, H-61, and H-62, the estimated HQs for residential exposure to chemicals in soil through dermal absorption, ingestion, and inhalation are all below unity (1.0) for both the PAEI and RMEI scenarios. The combined HQs for children and youths as indicated by Table H-90 are also below unity (1.0). Thus, the potential exposure to chemicals

in soil via all pathways described should not present any risk of noncarcinogenic health effects to future residents.

As shown in Tables H-55, H-56, H-59, H-60, H-63, and H-64, the estimated ILCRs for residential exposure to chemicals in soil through dermal absorption, ingestion, and inhalation are all below *de minimis* (1.0E-6) for the PAEI scenario. The combined ILCRs for children and youths indicated by Table H-91 for the PAEI scenario are also below *de minimis*.

For the RMEI scenario, there were several slight exceedences of the *de minimis* risk level (same order of magnitude) for both children and youth summarized in Table H-91, and adults (Table H-64) However, the RMEI scenario uses the maximum detected soil concentration for each COPC along with extremely conservative health protective exposure assumptions to estimate the upper bound risk. Examination of the raw data indicates that the maximum concentrations used for purposes of these calculations were, in all cases, approximately five fold or more higher than the mean concentrations. In addition, in all cases, the maximum concentration exceeds the second highest concentration by a factor of at least 2.5. Clearly, the maximum concentrations are outliers and thus, associated theoretical risks are not representative of any actual Site-wide conditions.

The following presents the estimated RMEI carcinogenic risks that exceed 1.0E-6 for the recreational scenarios.

Estimated Incremental Lifetime Cancer Risks above *de minimis* (1.0E-6) and Associated with the Residential Recreational Reasonable Maximum Exposure Scenario.

Chemical	Child	Youth	Child + Youth	Adult
Benzo[a]anthracene	1.09E-6		1.92E-6	
Benzo[a]pyrene	9.00E-6	6.88E-6	1.59E-5	2.64E-6
Benzo[b]fluoranthene			1.29E-6	
Dibenzo[a,h]anthracene	3.26E-6	2.49E-6	5.75E-6	
Indeno[1,2,3]pyrene			1.12E-6	
Arsenic	7.00E-6	4.91E-6	1.19E-5	1.68E-6

7.2.3.4 Residential Gardening Exposure to Chemicals in Soil

Under the gardening scenarios, adults were theoretically exposed to Site soil through gardening maintenance activities. Relevant pathways include dermal absorption, ingestion, and inhalation of chemicals in soil.

As shown in Tables H-65 and H-66, the estimated HQs for adult exposure to chemicals in soil through dermal absorption, ingestion, and inhalation are all below unity (1.0) for both the PAEI and RMEI scenarios. The potential exposure to chemicals in soil via all pathways while gardening as described above should not present any risk of noncarcinogenic health effects to future residents.

As shown in Tables H-67 and H-68, the estimated ILCRs for adult exposure to chemicals in soil through dermal absorption, ingestion, and inhalation are all below *de minimis* (1.0E-6) for the PAEI scenario. However, three chemicals were at exposure levels that were above 1.0E-6 for the RMEI scenario. The estimated ILCRs for benzo[a]pyrene (5.36E-6), dibenzo[a,h]anthracene (1.94E-6), and arsenic (3.37E-6) were each above *de minimis* risk levels.

The RMEI scenario uses the maximum detected soil concentration for each COPC along with extremely conservative health protective exposure assumptions to estimate the upper bound risk. Examination of the raw data indicates that the maximum concentrations used for purposes of these calculations were, in all cases, approximately five fold or more higher than the mean concentrations. In addition, in all cases, the maximum concentration exceeds the second highest concentration by a factor of at least 2.5. Clearly, the maximum concentrations are outliers and thus, associated theoretical risks are not representative of any actual Site-wide conditions. Therefore, the exceedances of the *de minimis* risk level for the RMEI scenario are not indicative of an unacceptable risk for the residential gardening scenario receptors.

7.2.3.5 Residential Exposure to Chemicals in Homegrown Produce

Under all produce ingestion scenarios, residents were assumed potentially exposed to Site soil through bioconcentration of chemicals in homegrown produce. Tables H-69 and H-70 summarize the estimated concentrations in produce grown in Site soil.

As shown in Tables H-71 and H-72, H-75 and H-76, H-79 and H-80, the estimated HQs for residential exposure to chemicals in soil through consumption of homegrown produce are all below unity (1.0) for both the PAEI and RMEI scenarios. The combined HQs for children and youths as indicated by Table H-92 are also below unity (1.0). The potential exposure to chemicals in soil via a produce consumption pathway described above should not present any risk of noncarcinogenic health effects to future residents.

As shown in Tables H-73 and H-74, H-77 and H-78, H-81 and H-82, the estimated ILCRs for residential exposure to chemicals in soil through consumption of homegrown vegetables are all below *de minimis* (1.0E-6) for the PAEI scenario, except for benzo[a]pyrene for the youth (2.08E-6) and adult (1.59E-6) receptors. The combined ILCRs for children and youths indicated by Table H-93 for the PAEI scenario are also below *de minimis*, except for benzo[a]pyrene (2.79E-6) . A few chemicals were at levels calculated to be slightly above the *de minimis* level for the RMEI scenario for children, youths and adults. In addition to the uncertainties with respect to the plant uptake models, there is significant uncertainty whether any homegrown produce will actually be cultivated in pre-existing soils after construction is complete. Therefore, the RMEI scenario, which uses the maximum detected soil concentration along with extremely conservative health protective exposure assumptions to estimate the upper bound risk, is a highly speculative scenario with multiple levels of conservatism that exaggerates any likely risk. Furthermore, assuming that the pre-existing soil conditions remain accessible examination of the raw data indicates that the maximum concentrations, in all cases, are five fold or more higher than the mean concentrations. In addition, in all cases, the maximum concentration exceeds the second highest concentration by a factor of at least 2.5. Clearly, the maximum concentrations are outliers and thus, associated theoretical risks are not representative of any actual Site-wide conditions. Therefore, the exceedances of the *de minimis* risk level for the RMEI scenario are not indicative of an unacceptable risk to residential recreational receptors.

The following presents the estimated ILCRs above de minimis for the produce consumption scenarios

Estimated Incremental Lifetime Cancer Risks Above *de minimis* (1.0E-6) and Associated with the Consumption of Homegrown Produce Reasonable Maximum Exposure Scenario.

Chemical	Child	Youth	Child + Youth	Adult
Benzo[a]anthracene	1.25E-6	3.63E-6	4.88E-6	3.10E-6
Benzo[a]pyrene	1.01E-5	2.94E-5	3.95E-5	2.50E-5
Benzo[b]fluoranthene		2.47E-6	3.32E-6	2.11E-6
Dibenzo[a,h]anthracene	3.34E-6	9.76E-6	1.31E-5	8.24E-6
Indeno[1,2,3]pyrene		1.85E-6	2.48E-6	1.56E-6
Arsenic		1.47E-6	2.06E-6	1.91E-6

7.2.4 Construction Worker Risk Characterization

Two theoretical exposure scenarios were considered in the construction exposure assessment to evaluate risk to workers performing ground invasive activities. The PAEI scenario represents an average potential exposure, while the RMEI represents a maximum potential exposure. Construction worker scenarios incorporated exposure to groundwater, soil, and solid materials contained within subsurface building structures.

7.2.4.1 Construction Worker Exposure to Groundwater

Under both the general construction scenario and when performing activities within subsurface building structures, Site-wide groundwater was evaluated for dermal and inhalation (VOCs only) exposure pathways. The construction scenario assumed that the workers are wearing normal construction type work clothes, i.e., long pants and short sleeve shirts.

As shown in Tables H-25, H-26, H-29, and H-30, the estimated HQs for construction worker exposure to chemicals in groundwater through dermal absorption and inhalation (VOCs only) are all below unity (1.0) for both the PAEI and RMEI scenarios. The potential exposure to chemicals in groundwater via all pathways described should not present any risk of noncarcinogenic health effects to construction workers.

As shown in Tables H-27, H-28, H-31, and H-32, the estimated ILCRs for construction worker exposure to chemicals in groundwater through dermal absorption and inhalation (VOCs only) are all below *de minimis* (1.0E-6) for the PAEI and RMEI scenarios, except for benzo[a]pyrene (2.00E-6) for the general construction RMEI scenario. Under this scenario, the risk calculation uses a hypothetical concentration for benzo[a]pyrene that is based on one-half of the maximum analytical method, non-detection limit, i.e., 5.5 µg/L, rather than a confirmed detection of benzo[a]pyrene. Consistent with the protocol previously described for non-detects, one-half of the reported detection limit is used as a surrogate concentration in any statistical evaluation or risk estimate. Thus, this estimated risk for benzo[a]pyrene is based on a theoretical concentration and not an actual concentration for this chemical. In fact, the maximum detected in all groundwater samples was nearly an order of magnitude lower (i.e., 0.7 µg/L). This maximum detected concentration corresponds to an estimated risk level of nearly an order of magnitude lower than reported above when using one-half the detection limit as the maximum concentration level. Thus, potential exposure via dermal absorption and inhalation of chemicals from groundwater should not present any risk of carcinogenic health effects to construction workers performing ground invasive activities at the Site.

7.2.4.2 Construction Worker Exposure to Soil

Under both the general construction scenario and when workers are performing activities within subsurface building structures, soil and solid materials contained within subsurface building structures were evaluated for dermal absorption, ingestion, and inhalation exposure pathways.

As shown in Tables H-33, H-34, H-37, H-38, H-41, H-42, H-45, H-46, H-49, and H-50 present the range of the estimated HQs (i.e., PAEI and RMEI) for construction worker exposure to chemicals in groundwater and soil through dermal absorption, ingestion, and inhalation are all below unity (1.0) for both the PAEI and RMEI scenarios, with the exception of antimony (2.86E+0) in the Northern Area RMEI scenario and thallium (1.77E+0) in the Western Area RMEI scenario. These two exceedances of unity for the HQs are associated with the assumed ingestion of soil containing the maximum concentration of each metal. Because, in each case, the average soil concentration detected at the Site is approximately five fold lower, the maximum

concentrations are outlier concentrations that are not representative of any likely ingestion scenario. In general, the potential exposure to chemicals in soil via all pathways described should not present any risk of noncarcinogenic health effects to construction workers.

As shown in Tables H-35, H-36, H-39, H-40, H-43, H-44, H-47, H-48, H-51, and H-52, the estimated ILCRs for construction worker exposure to chemicals in soil through dermal absorption, ingestion, and inhalation are all below *de minimis* (1.0E-6) for the PAEI and RMEI scenarios. Thus, potential exposure via dermal absorption, ingestion, and inhalation of chemicals in soil should not present any risk of carcinogenic health effects to construction workers performing ground invasive activities at the Site.

7.2.4.3 Lead Exposure

The Occupational Safety and Health Administration (OSHA) states that blood lead level of workers (male and female) intending to have children should remain below 30 micrograms per deciliter (µg/dL) to minimize adverse health effects to the parents and the developing fetus. Prevention of adverse health effects for most workers from lead exposure throughout a working lifetime requires that worker blood lead level be maintained at or below 40 µg/dL of whole blood (29 CFR Part 1910.1025). Tables H-83 through H-88 summarize the results of the lead biokinetic slope factor model for the PAEI, and RMEI exposure scenarios for construction workers performing ground invasive activities within the subsurface building structures.

The highest blood lead level predicted in the RA using the biokinetic slope factor model was 24 µg/dL estimated for the Central Area. This blood lead level corresponded to the 99^{th} percentile with a geometric standard deviation (GSD) of 2.1 for exposure to lead in the solid material within subsurface building structures for the RMEI construction scenario. This blood lead concentration is below any blood lead concentrations of concern (i.e., between 30 and 40 µg/dL blood lead concentration).

7.3 Uncertainty Analysis

The comprehensive analysis of the uncertainties associated with the estimated exposures is provided in Appendix H, Section 7.0. The following presents a brief summary of pertinent specific uncertainties that would directly overestimate the potential risks.

Finite quantities of chemicals are present in the soil, groundwater, and solid materials contained within subsurface building structures at the Site. Chemical concentrations will tend to undergo attenuation over a period of years as a result of processes such as degradation by naturally occurring organisms (Riser-Roberts, 1992). Thus, over a period of years under natural conditions, the maximum observable concentrations of chemicals in the soil, groundwater, and solid materials contained within subsurface building structures will decrease. The exposure assessment does not take this potential attenuation into account.

The exposure assessment utilizes mathematical models that assume *a priori* that the COPCs are in a form in which they are readily available for the potential receptors to be exposed. The vegetable consumption and recreational exposure assessments assumed that the chemical concentrations measured in soil are completely bioavailable. For most of the COPCs involved in this scenario (i.e., PAHs) prediction of bioconcentration based on equilibrium partitioning may be inappropriate (Schaefer, 2001; McGroddy and Farrington, 1995) and actual concentration available for partitioning to produce or the rate of dermal absorptions may be significantly lower. The vegetable scenario models also do not take into account the removal of chemicals that would be expected to occur due to uptake by the plants over the exposure period, again resulting in lowered exposure concentrations over time. In addition, when creating a garden, clean fill (typically topsoil) is added to supplement existing soil. This could have the effect of immediately and significantly diluting the Site soil COPCs and ultimately reducing bioconcentration in homegrown produce. The limited size of the proposed individual properties will also severely limit the quantity of homegrown produce grown and consumed.

The vapor models used to estimate indoor air vapor concentrations associated with the presence of VOCs in groundwater and as soil gas assume a continuous release of vapor. Ideally there will be a loss of chemical mass over time that the models do not take into account.

The one detected chemical that contained an ILCR in excess of the target value was driven by maximum groundwater concentrations that represent the worst-case theoretical conditions for chemical exposure (adult RMEI indoor air exposure). Trichloroethene is one order of magnitude higher in concentration for the RMEI exposure scenario than the average concentration used in

the PAEI exposure scenario (Table H-2). It is highly unlikely that the receptor would be exposed to the maximum concentration throughout the duration of this RMEI exposure scenario given removal mechanisms such as attenuation, volatilization, advection, etc. Furthermore, the building infiltration model applied used generic assumptions that will tend to overestimate indoor air concentrations. For example factors such as the method of slab construction and building ventilation can influence indoor air concentration. The model, as used, included default conservative assumptions that likely overestimate indoor air concentrations.

The averaging time used to estimate average daily intake for noncarcinogenic compounds was established at either 3 or 6 weeks for construction exposures during ground invasive activities at subsurface building structures. This was a health-protective procedure because it averaged the intakes of noncarcinogenic compounds over a short period of time. In reality, the construction worker may spend the 15 or 30 workdays at the Site spread over the course of an entire year rather than in a 3 or 6-week period. Use of the shorter averaging time for exposure ensures that the average daily intake is greater, and thus, HQs associated with these compounds are also greater.

The selection of receptors for the construction exposure scenario assumes that the same worker will be present at the Site during the entire period of construction. However, it is more likely that construction activities will be conducted by a variety of workers from different crafts (i.e., masons, electricians, sheet-metal workers). Thus, it is unlikely that any one worker will be present at the Site during the entire construction period and therefore the assumptions used tend to overestimate any potential risk. The duration of exposure for the recreational activities may also be inflated, particularly for the youth receptor. Although with increased age comes increased independence, it is likely that the actual time spent at the Site by youths, being exposed to Site soils, is lowered in comparison with the total days exposed used in this RA.

7.4 Conclusions

A conservative Site-specific risk assessment was conducted, based on procedures recommended by the USEPA, to evaluate current and future potential risks, if any, to human health posed by chemicals identified in environmental media associated with the former Thypin Steel Inc. Facility (Site). With the proposed redevelopment of the Site for future residential use, this

exposure assessment focused on residential scenarios that included both average (PAEI) and upper bound (RMEI) exposure assumptions. The use of the PAEI and RMEI exposure scenarios allows the potential exposure and risk to be bracketed between exposures that could reasonably be expected at the Site, and exposures that are highly unlikely to be reached or exceeded. In addition, construction worker scenarios were included to address the potential for exposure to chemicals in soils, groundwater and solid material contained within subsurface building structures.

The approach of this RA used extremely health-protective assumptions that are designed to overestimate the potential theoretical risks. This approach for managing uncertainties has a magnifying effect on the outcome of the RA process. Because each conservative step builds on the previous one, the overall result of making biased assumptions likely significantly overestimates risk, therefore compensating for any RA uncertainties that may result in underestimation of risk and assures that the overall assessment provides an ample margin of safety.

Under the exposure scenarios described there are three situations where the ILCR slightly exceeds the *de minimis* risk level of 1E-6 in a PAEI exposure scenario. These exceedences occur when the risk from estimated consumption of benzo[a]pyrene in homegrown produce by adults, youth and when children and youth(s) are combined. There are inherent uncertainties in this evaluation because:

- no literature has been identified that supports any specific uptake rate for SVOCs into plant material;
- information on possible distribution and metabolism of SVOCs within any plant has not been identified;
- based on the space that would potentially be available for cultivation it is uncertain whether the quantity of crops suggested under the RMEI exposure scenario could actually be grown simultaneously; and
- the fraction of benzo[a]pyrene included within a food matrix subject to gastrointestinal absorption is unknown.

To maintain a health-protective approach it was assumed that 80 percent of the theoretical amount of benzo[a]pyrene ingested was absorbed, however, studies with PAHs dissolved in oil

suggest that absorption is more likely in the range of 40 to 60 percent (ATSDR, 1995) This hypothetical pathway is not sufficiently supported by experimental data for risk levels that marginally exceed (less than an order of magnitude) a *de minimis* level to be considered a risk, nor should it be used to justify any form of remedial activity.

All other exceedances of the target risk level occurred in the RMEI exposure scenarios. With the use of the maximum detected chemical concentration and the associated health protective assumptions, there is a considerable level of overestimation of potential risks. Use of average concentrations of Site-related constituents to estimate potential risk is more representative, but still likely overestimates any anticipated exposure that could occur after redevelopment is complete. Thus, it is concluded that the residual VOCs, SVOCs, and metals in the soil, groundwater, and subsurface building structures will not negatively impact indoor air quality and will not pose any excessive human health risk to residents occupying future buildings and for construction workers performing activities consistent with these exposure conditions and with regard to both carcinogenic and noncarcinogenic health effects.

It is understood that additional fill will likely be placed on the Site prior to property development; thus, the likelihood of contact with soils impacted by Site related chemicals or to groundwater will be reduced by the presence of the additional soil cover. Added soil could also be mixed with Site soil, which ultimately will dilute concentrations of COPCs. After construction is completed, buildings and impervious surfaces (e.g., a roadway, a driveway, and/or a patio) will cover much of the Site and there will be likely be little opportunity for contact with any Site related constituents in soil and groundwater.

8.0 FINDINGS AND CONCLUSIONS

The following sections present the findings and conclusions of the IWP and SI conducted at the Site.

8.1 Findings

A summary of the key findings is provided below, which includes the Site geology, groundwater flow, soil quality, subsurface building structure material quality, groundwater quality, and soil gas quality. The media quality is presented by analyte group.

8.1.1 Site Geology

- Three distinct geologic strata were encountered at the Site from land surface to a depth of 125 ft bls. These strata include:
  - a disturbed, brown sand strata (i.e., fill material), which is present throughout the Site with a thickness that ranges from approximately 0.5 ft to 8 ft;
  - an orange/tan sand strata, which underlies the fill material to a depth of approximately 50 ft to 60 ft bls. Groundwater occurs near the top of the sand strata at a depth ranging from 8 ft and 12 ft bls as measured in monitoring wells at the Site; and
  - a gray silt/clay strata, which underlies the sand strata to a depth of 125 ft bls, and probably extends to approximately 240 ft bls based on regional data.
- These strata are interpreted to include the Upper Glacial formation (sand strata) and the Port Washington Confining Unit (silt/clay strata). Based on regional geologic information available for the Manorhaven area, other geologic units exist at depths below 125 ft bls, but were not encountered during the drilling program because the deepest boreholes were terminated at 125 ft bls. These deeper geologic strata include the Port Washington aquifer, which is approximately 100 ft thick, underlain by bedrock.
- The fill materials are characterized as predominately fine to coarse sand, with varying amounts of cinders, brick, concrete, asphalt, roofing materials, wood, metal debris, steel and clay piping, and other assorted building structure materials.
- The sand strata are characterized by their orange-brown color, fine to coarse grain size, with varying amounts of silt and some mica. A discontinuous layer of medium to coarse-grained sand with little gravel is present near the top of this stratum. These strata are interpreted to be part of the Upper Glacial formation.
- The silt strata are characterized by their gray color, some clay, with minor amounts of fine sand and mica. These strata are interpreted to be part of the Port Washington Confining Unit.

8.1.2 Groundwater Flow

- The groundwater flow direction in the shallow zone (i.e., shallow wells screened from approximately 8 ft to 18 ft bls) during high and low tides is generally consistent, but with

minor deviations across the Site. During low tide, flow on the east side of the Site flows generally to the south; on the west side, flow is generally towards the south-southwest. During high tide, the flow on the east side of the Site is relatively consistent with low tide; on the west side of the Site the flow bends slightly more to the south near the southern portion of the Site.

- The groundwater flow direction in the intermediate zone (i.e., intermediate wells are screened from approximately 30 ft to 50 ft bls) between high and low tides is generally consistent with the estimated groundwater flow direction for the shallow zone.

- The groundwater flow direction in the deep zone (i.e., deep wells screened approximately 105 ft to 125 ft bls) between high and low tides is generally consistent across the Site. Flow on the east side of the Site flows generally to the southwest; flow on the west side of the Site bends in a westerly direction.

- The results of a second synoptic water-level measurement round (August 1, 2001) confirmed the results of the first round (July 20, 2001) regarding the groundwater flow direction for the shallow, intermediate, and deep zones. Additionally, previous water-level measurements (November/December 2000) for the shallow zone indicated a consistent groundwater flow pattern as the July 20, 2001 and August 1, 2001 rounds.

- Based on the groundwater elevations measured in the nested wells (i.e., shallow and deep), there is a small measurable overall downward potential for flow between the shallow and deep zones at the Site. Nevertheless, the predominant groundwater flow direction at the Site is horizontal. Although not encountered during the drilling program, the Port Washington aquifer is a sand deposit approximately 100 ft thick, which underlies the Port Washington Confining Unit at a depth of approximately 200 ft bls beneath the Site. The Port Washington Confining Unit is approximately 130 feet thick beneath the Site and has been interpreted as a continuous hydrogeological unit that extends beneath the Site and Manhassett Neck. The characteristically low permeability of this unit and its thickness (130 feet) provides a high degree of protection from surface impacts by greatly restricting the availability of groundwater that recharges the Port Washington Aquifer from the shallow zone.

- Based on the horizontal flow direction at the Site, the groundwater impacts at the Site should not pose a threat to the water quality of the public supply wells (within an approximate 2-mile radius from the Site) because the ultimate discharge point for the groundwater at the Site is Manhasset Bay, and not towards the public supply wells.

8.1.3 Soil Quality

VOCs

- VOCs were not detected in soil at concentrations that exceed NYSDEC RSCOs at the Site.

SVOCs/BNs

- Five SVOCs/BNs were detected in soil (6 ft to 8 ft bls) at concentrations that slightly exceed their respective NYSDEC RSCOs at the former UST Area at TP-9. These SVOCs/BNs include benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, chrysene, and dibenzo[a,h]anthracene. However, chrysene and dibenzo [a,h] anthracene at SB-9 (6 ft to 8 ft bls) were the only BNs detected in soil at a concentration that exceeded their NYSDEC RSCOs in the delineation samples furthest from the former UST Area at TP-9. Based on the level of BN concentrations, these BNs appear to be limited around Soil Boring SB-9.

- SVOCs/BNs were not detected in soil at concentrations that exceed the NYSDEC RSCOs in the former leaching field.

- Eight SVOCs/BNs were detected in soil at concentrations that exceed the NYSDEC RSCOs within the former building footprint. These SVOCs/BNs include benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, indeno[1,2,3-cd]pyrene, and nitrobenzene. At three locations (SB-15, SB-17, and SB-19), the exceedances occurred within the top 2 ft bls. Please note that the top 2 ft bls at Soil Borings SB-15 and SB-17 is comprised of fill material. At two other locations, exceedances occurred at a depth interval of 4 to 6 ft bls in Soil Boring SB-20, and at a depth interval of 8 to 10 ft bls in SB-21.

- Four SVOCs/BNs detected in soil at concentrations that exceed the NYSDEC RSCOs at two Sitewide soil borings (SB-23 and SB-72). These SVOCs/BNs include benzo[a]anthracene, benzo[a]pyrene, chrysene, and dibenzo[a,h]anthracene. At one location (SB-23), the exceedances occurred within the top 2 ft of land surface. Please note that the top 2 ft bls at Soil Boring SB-23 is comprised of fill material. Soil Boring SB-23 is located in the former parking lot on the east side of the building footprint. At one location, exceedances occurred at a depth interval of 10 to 12 ft bls in Soil Boring SB-72, which is located in the northern portion of the Site, east of former Building 3, and north of former Building 2.

Metals

- Four TAL metals (beryllium, chromium, iron, and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs at the former plating area. However, the reported concentrations of these four metals were detected below their respective Eastern USA Background Concentration.

- Three TAL metals (iron, chromium, and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs at the former UST Area at TP-9. However, only zinc at TP-9C (6 ft to 8 ft bls) at 54 mg/kg, located on the south side of the former UST Area, slightly exceeded its Eastern USA Background Concentration of 50 mg/kg.

- Five TAL metals (beryllium, chromium, iron, nickel, and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs in the former leaching field. However,

the reported concentrations of these five metals were detected below their respective Eastern USA Background Concentration.

- Six TAL metals (beryllium, chromium, iron, nickel, selenium, and zinc) were detected in soil at concentrations that exceeded the NYSDEC RSCOs within the former building footprint. Except for zinc, these metals were detected in soil at concentrations below the Eastern USA Background Concentrations. Zinc exceeded its Eastern USA Background Concentration at Soil Borings SB-15 (0 to 2 ft bls), SB-17 (0 to 2 ft bls), and SB-20 (4 ft to 6 ft bls). Please note that the top 2 ft bls at Soil Borings SB-15 and SB-17 is comprised of fill material.

- Eight TAL metals (arsenic, beryllium, chromium, copper, iron, nickel, selenium and zinc) were detected in soil at concentrations that exceed the NYSDEC RSCOs in the Sitewide soil borings. Except for arsenic, nickel, selenium, and zinc, these metals were detected in soil at concentrations below the Eastern USA Background Concentrations. These metals exceedances occurred at Soil Boring SB-23 (0 to 2 ft bls), where fill material is present.

CN

- CN was not detected in any soil samples collected throughout the Site.

pH

- The soil pH ranged from 7.24 SU to 9.98 SU throughout the Site.

DNAPL

- DNAPL was not detected in soil from eight soil borings (SB-7, SB-12, SB-23, SB-24, SB-38, SB-40, SB-42, and SB-45) throughout the Site.

8.1.4 Building Subsurface Structure Material Quality (Solid and Liquid Material)

VOCs

- Eight VOCs were detected in the subsurface building structure material (solid material) at concentrations that exceed the NYSDEC RSCOs. These VOCs include methylene chloride, acetone, 2-butanone, TCE, toluene, chlorobenzene, ethylbenzene, and xylenes. Of these, methylene chloride, 2-butanone, and acetone were detected in the laboratory control blanks and are, therefore, considered laboratory artifacts and not considered representative of Site-related impacts.

  TCE, toluene, chlorobenzene, ethylbenzene, and xylenes were detected at concentrations that exceed their respective NYSDEC RSCOs at only two sample locations: TP-16 GS-1, and TP-16-GS. The samples analyzed from these locations were comprised of the green material that was removed and disposed offsite. Test Pit TP-16 is located adjacent to the concrete structure of the former plating area in the central portion of the Site.

Chlorobenzene was also detected in subsurface building structure material at a concentration that exceeds its NYSDEC RSCO at sample location ST-1. Sample ST-1 was a solid material collected from the septic chamber located in the central portion of the Site.

- There were no exceedances of the USEPA regulatory levels for VOCs in the subsurface building structure material (solid material) using the TCLP and SPLP.

- TCE, TCA, and chlorobenzene slightly exceeded their respective NYSDEC AWQSGV for VOCs in the subsurface building structure material (liquid material). The exceedances occurred in samples collected from the east leaching pool, and the septic chamber.

SVOCs

- Nineteen SVOCs were detected in the subsurface building structure material (solid material) at concentrations that exceed the NYSDEC RSCOs. The acid extractable constituents of the SVOCs include 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 4-methylphenol, phenol, dibenzofuran, while the BN constituents of the SVOCs include benzo(a)anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, di-n-butyl phthalate, benzo[g,h,i] perylene, bis[2-ethylhexyl] phthalate, fluoranthene, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

  The areas of the Site where the SVOCs exceeded the NYSDEC RSCOs in the fill material buried in subsurface building structures include the former fireproof room at the north concrete cradle at TP-15, the former plating area at TP-16, the north leaching structures at TP-19, the pipes in the southeast portion of the Site at TP-21 and TP-23, the former septic tank at TP-31, the leaching structures in the central portion of the Site and the septic chamber at TP-32, and the former pump house at TP-35.

- There were no exceedances of the USEPA regulatory levels for SVOCs in the subsurface building structure material using the TCLP and SPLP.

- SVOCs were not detected in the subsurface building structure material (liquid material) at concentrations that exceed the NYSDEC AWQSGVs.

Metals

- Fifteen TAL metals were detected in the subsurface building structure material (solid material) at concentrations that exceed the NYSDEC RSCOs. These include arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, mercury, nickel, selenium, and zinc. Except for iron, these metals were detected in subsurface building structure material at concentrations that exceed the Eastern USA Background Concentrations.

The areas of the Site where metals exceeded the NYSDEC RSCOs in the building subsurface structure material include the former fireproof room at the north concrete cradle at TP-15, the former plating area at TP-16, the leaching structures at TP-19, the pipes in the southeast portion of the Site at TP-21 and TP-23, the former septic tank at TP-31, the leaching structures in the central portion of the Site and the septic chamber at TP-32, the leaching structure at TP-33, the former pump house at TP-35, and the pipe near the former welding shop area at TP-36.

Elemental mercury, mixed with green material and typical Site fill material, was observed in the manhole located in the eastern-central portion of the Site. This material was subsequently removed and disposed offsite.

- Chromium was the only metal to exceed its USEPA regulatory level of 5,000 µg/L in the subsurface building structure material (solid material) using the TCLP and SPLP. This exceedance only occurred in the green material from samples collected at Test Pits TP-16, TP-21, and TP-23.

- Six TAL metals (iron, lead, magnesium, manganese, sodium, and thallium) were detected in unfiltered liquid samples of the subsurface building structure material at concentrations that exceed the NYSDEC AWQSGVs. Except for lead, these six metals were also detected at concentrations that exceed the NYSDEC AWQSGVs in filtered samples. The areas of the Site where these exceedances occurred include the east and west leaching structures, the septic chamber, and the metal box encountered in Test Pit TP-33.

CN

- CN was detected in three samples, comprised of the green material, at the former plating area and at Test Pit TP-21. CN was also detected in two samples from the sediment in the west and north pipes leading into a manhole (i.e., approximately 5 ft into the pipes from the manhole) on the eastern-central portion of the Site.

PCBs

- Three PCB Aroclors were detected in the green material and stained wood debris, which include Aroclors 1242, 1254 and 1260. These three Aroclors were not detected at concentrations that exceed the NYSDEC RSCOs.

8.1.5 Groundwater Quality

VOCs

- Seven VOCs were detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs in the shallow and intermediate zones. VOCs were not detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs in the deep zone at the Site. TCE, PCE, and TCA were the predominant VOCs detected in groundwater at the Site.

- The predominant VOCs (i.e., TCE, PCE, and TCA) detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs are present in three overlapping plumes at the Site.

- TCE was detected in the shallow groundwater zone at concentrations that exceed its NYSDEC AWQSGV at two isolated locations at the Site. The portion of the TCE plume in the shallow zone is located as follows: 1) at Monitoring Well MW-28, and 2) at an area of the Site that extends from approximately 20 ft south-southwest of the former septic chamber southeastward approximately 330 ft to an area approximately 30 ft south of Monitoring Well MW-2 near the south property boundary. The latter TCE plume is approximately 170 ft wide, at its widest portion. The highest TCE concentration in the shallow groundwater zone was detected at Monitoring Well MW-31S (100 µg/L).

- TCE was also detected in the intermediate groundwater zone at concentrations that exceed its NYSDEC AWQSGV at the Site. The portion of the TCE plume in the intermediate zone is present in an area approximately one-third the size of the Site that extends from approximately 40 ft southwest of the Monitoring Well MW-23 well cluster southward to the south property boundary. Laterally, this portion of the TCE plume extends from approximately 20 ft west of the Monitoring Well MW-29 well cluster on the east side of the Site to the western edge of the Site, at its widest portion. The highest TCE concentration in the intermediate groundwater zone was detected at Monitoring Well MW-35I (5,500 µg/L).

- TCE was detected in only one groundwater sample (MW-35D at an estimated concentration of 0.3 µg/L) from the deep groundwater zone at the Site. However, the reported concentration of TCE in this sample was detected below its NYSDEC AWQSGV.

- The TCE plume is continuous between the shallow and intermediate zones. The estimated vertical extent of TCE detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs has been delineated to an approximate maximum depth of 93 ft bls.

- PCE was detected in the shallow groundwater zone at concentrations that exceed its NYSDEC AWQSGV at two isolated locations at the Site. The portion of the PCE plume in the shallow groundwater zone is located as follows: 1) at Monitoring Wells MW-27 and MW-28, and 2) at an area of the Site that extends from the area approximately 10 ft south of the former north wall of former Building 1 approximately 190 ft southward to the area approximately 20 ft northeast of the Monitoring Well MW-2 well cluster near the south property boundary. The latter PCE plume is approximately 135 ft wide, at its widest portion. The highest PCE concentration in the shallow groundwater zone was detected at Monitoring Well MW-31S (100 µg/L).

- PCE was also detected in the intermediate groundwater zone at concentrations that exceed its NYSDEC AWQSGV at the Site. The portion of the PCE plume in the intermediate zone is present in an area that extends from approximately 30 ft north of the Monitoring Well MW-31 well cluster southward to the south property boundary. Laterally, this portion of the PCE plume is approximately 115 ft wide, at its widest

portion. The highest PCE concentration in the intermediate groundwater zone was detected at Monitoring Well MW-2I (22 µg/L).

- PCE was not detected in the deep groundwater zone at the Site.
- The PCE plume is continuous between the shallow and intermediate zones. The estimated vertical extent of PCE has been delineated to an approximate maximum depth of 83 ft bls.
- TCA was detected in the shallow groundwater zone at concentrations that exceed its NYSDEC AWQSGV at two isolated locations at the Site. The portion of the TCA plume in the shallow zone is located as follows: 1) at Monitoring Well 32S, located in the northeastern portion of the Site, and 2) at Monitoring Well MW-31S, located in the eastern portion of former Building 1. The highest TCA concentration in the shallow groundwater zone was detected at Monitoring Well MW-31S (52 µg/L).
- TCA was also detected in the intermediate groundwater zone at concentrations that exceed its NYSDEC AWQSGV at the Site. This portion of the TCA plume is present in an area that extends from approximately 20 ft north of the Monitoring Well MW-31 well cluster southward to the south property boundary. The latter TCA plume is approximately 100 ft wide, at its widest portion. The highest TCA concentration in the intermediate groundwater zone was detected at Monitoring Well MW-2I (68 µg/L).
- TCA was not detected in the deep groundwater zone at the Site.
- The TCA plume is continuous between the shallow and intermediate zones. The estimated vertical extent of TCA has been delineated to an approximate maximum depth of 87 ft bls.
- TCE, PCE, and TCA degradation products (such as 1,2 DCE, 1,1 DCA, and VC) have been detected in groundwater from the shallow and intermediate zones at the Site, indicating that natural reductive dechlorination is occurring. The degradation products were predominantly detected in the intermediate zone rather than the shallow zone. This is most likely a result of favorable biogeochemical conditions (anaerobic) in the intermediate zone groundwater for reductive dechlorination to occur.
- The biogeochemical parameters (dissolved oxygen [DO] in mg/L and oxidation-reduction potential [ORP] in millivolts [mV] measured in the field during the recent monitoring well sampling event indicate that the intermediate zone is more reducing (anaerobic) than the shallow zone (aerobic). The DO measured in the intermediate zone ranged from 0.0 mg/L in MW-34I to 0.67 mg/L in MW-30I as compared to 0.45 mg/L in MW-2 to 8.61 mg/L in MW-27 in the shallow zone. The ORP measured in the intermediate zone ranged from 124 mV in MW-30I to –126 mV in MW-34I as compared to 70 mV in MW-33S to 284 mV in MW-23 in the shallow zone.
- The degradation of 1,2 DCE to VC, and the degradation of VC to ethene, generally requires much more strongly reducing conditions in groundwater (typically in the range of -200 to -400 mV) than do the initial degradation steps. The more highly chlorinated

compounds are most susceptible to reductive dechlorination because of their higher state of oxidation. The intermediate zone is not reducing enough (i.e.; the ORP is not negative enough) to allow for the complete degradation to occur, however, an accumulation of some of the less oxidized daughter products has been observed (such as the accumulation of 1,2 DCE and VC in MW-34I). As a result, the ORP of the groundwater system is dependent on and can influence the specific reductive dechlorination processes.

SVOCs

- No SVOCs were detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs at the Site.

Metals

- Nine metals were detected in unfiltered groundwater from the shallow, intermediate, and deep zones at concentrations that exceed the NYSDEC AWQSGVs. These nine metals include antimony, beryllium, chromium, iron, lead, magnesium, manganese, nickel, and sodium. Six metals were detected in filtered groundwater at concentrations that exceed the NYSDEC AWQSGVs. These six metals include antimony, chromium, iron, magnesium, manganese, and sodium.

- Iron, magnesium, manganese, and sodium are metals that commonly occur in Long Island groundwater, and therefore, these metals are not considered representative of Site-related impacts (Buxton, 1981). Additionally, the level of concentrations of these four metals in the upgradient portion of the Site is similar to those in the downgradient portion of the Site. The antimony exceedance is considered anomalous because it was not detected in the corresponding unfiltered (i.e., total antimony concentration) groundwater sample.

- Chromium was detected in unfiltered groundwater at concentrations that exceed its NYSDEC AWQSGV of 50 µg/L in the shallow groundwater zone at MW-2, MW-25, MW-29S, MW-31S, and MW-32S and in the deep groundwater zone at MW-34D. However, the reported concentrations of this metal in filtered groundwater were not detected above the NYSDEC AWQSGVs in Monitoring Wells MW-2, MW-25, MW-32S, and MW-34D. Chromium was detected in the remaining wells (MW-29S and MW-31S) above the NYSDEC AWQSGVs in filtered groundwater in the eastern portion of former Building 1.

- In general, the metals groundwater quality data indicates:
  - that the number of metals detected in shallow unfiltered or filtered groundwater monitoring wells was slightly greater in number than those detected in the intermediate and deep groundwater zones;
  - that no clear trend was present regarding the level of the metals concentrations between shallow, intermediate, and deep groundwater zones; and

- that the level of metals concentrations in the unfiltered groundwater was higher than in the filtered groundwater. This result indicates that suspended particles (e.g., silt) were present in the unfiltered groundwater samples. Metals tend to sorb onto these particles, and the results of such analysis can be skewed (i.e., level of concentration increased) because of the presence of the suspended silt in the sample. Please note that the wells are screened in geologic units that either contain abundant silt or are comprised of silt.

CN

- CN was detected in unfiltered groundwater in the shallow zone at a concentration that exceeds its NYSDEC AWQSGV of 200 µg/L in only one monitoring well (MW-28) at 209 µg/L. In accordance with the IWP, cyanide was not analyzed in filtered groundwater during the monitoring well sampling round.

PCBs

- There were no PCB Aroclors detected in the shallow, intermediate, or deep zones at the Site.

8.1.6 Soil Gas Quality

- Fifteen VOCs were detected in soil gas at the four locations of the Site where the highest concentrations of VOCs were previously detected in groundwater at the water table. The VOCs detected include benzene, bromomethane, bromodichloromethane, carbon disulfide, carbon tetrachloride, chloroform, 1,1-dichloroethene, chloromethane, ethylbenzene, methylene chloride, styrene, PCE, TCE, toluene, and xylenes. The highest VOC concentration consistently detected in soil gas regardless of depth is TCE. The soil gas data indicates that the total VOC concentrations at 3 ft are marginally greater than those at 6 ft bls.

  The soil gas results indicate that the VOCs were detected (in areas of the shallow groundwater where plumes are present) groundwater at the water table are off gassing.

8.2 Conclusions

A summary of the key conclusions is provided below, which are presented by media and/or Site location.

8.2.1 Soil

- SVOCs/BNs detected in soil (0 to 2 ft bls) at concentrations that exceed the NYSDEC RSCOs may be attributed to the nature of the fill material (e.g., cinders, asphalt) at the Site. The source of the SVOCs/BNs (predominantly PAHs) detected above the NYSDEC RSCOs in soil at deeper depths (2 ft to 10 ft bls) is unknown because fill material was not observed in these samples and our conclusion that a source in the soil or subsurface

building structures was not present based on the results of the analytical work performed at 76 soil borings and 37 test pits/trenches (i.e., that the level of detection in the samples analyzed did not indicate a source) throughout the Site. These SVOCs/BNs detected at concentrations that exceed the NYSDEC RSCOs are not very mobile and have not impacted groundwater at the Site. Additionally, the results of the risk assessment concluded that the SVOC/BN concentrations detected at concentrations that exceed the NYSDEC RSCOs do not pose a current or future risk above a de minimis risk level to human health at the Site (see Section 9.2.5).

- Metals detected in soil (0 to 2 ft bls) at concentrations that exceed the NYSDEC RSCOs may be attributed to the nature of the fill material (e.g., metal debris) at the Site. Metals detected above the NYSDEC RSCOs in soil at deeper depths (2 ft to 10 ft bls) may be representative of Site background conditions because:
  - the majority of the metals concentrations were detected below the Eastern USA Background Concentrations; and
  - the metals concentrations are similar throughout the soil column from land surface to the water table and throughout the Site, and that the metals are widespread throughout the Site.

  Additionally, the results of the risk assessment concluded that the metals concentrations detected above the NYSDEC RSCOs do not pose a current or future risk above a de minimis risk level to human health at the Site (see Section 9.2.5).

- DNAPL was not present in the soil from the eight soil borings tested throughout the Site.

- Former UST Area at TP-9 – The black stained material identified at the former UST Area at TP-9 during a previous investigation was not observed during the implementation of the IWP. SVOCs/BNs (i.e., chrysene and dibenzo [a,h]anthracene) were detected in soil at concentrations that slightly exceed that NYSDEC RSCOs in only one of the four delineation samples surrounding the former UST. These SVOCs/BNs are not considered to be very mobile, and the results of the risk assessment concluded that the SVOC/BN concentrations detected do not pose a current or future risk above a de minimis risk level to human health at the Site (see Section 9.2.5).

- Additionally, SVOCs/BNs were not detected in groundwater at this location.

- Former Leaching Field – No residual impacts were observed in the former leaching field based on the excavation and offsite disposal of the former drywells during a previous investigation at the Site, and the IWP soil and groundwater quality results that indicate that no constituents are present that exceed a SCG.

8.2.2 Subsurface Building Structure Material

- VOCs, SVOCs, and metals were detected in the subsurface building structure material (solid material) at concentrations that exceed the NYSDEC RSCOs. The sources of these constituents are likely no longer present at the Site based on the results of the analytical

work performed on the subsurface building structure material (i.e., the level of detection in the samples did not indicate a source), and the absence of a DNAPL at the Site. The sources of these constituents were likely due to the discharge of process wastes to the former subsurface structures by the former manufacturing firms (e.g., Grumman, Republic) at the Site. The process wastes would likely include metals plating solutions/sludge, solvents and paints, which are typically used in the manufacturing of airplanes and engine parts. These process wastes are consistent with the subsurface building structure material (solid material) impacts identified during the implementation of the IWP and SI. The results of the risk assessment concluded that the concentrations of the detected constituents in the subsurface building structure material do not pose a current or future risk above a de minimis risk level to human health at the Site (see Section 9.2.5).

VOCs and metals were detected in the subsurface building structure material (liquid material) at concentrations that exceed the NYSDEC AWQSGVs in the east leaching pool, the septic chamber, and the metal box at TP-33. The sources of these constituents are likely no longer present at the Site based on the results of the analytical work performed on the subsurface building structure material (i.e., the level of detection in the samples did not indicate a source), and the absence of a DNAPL at the Site. The sources of the constituents in the east leaching structure and septic chamber were likely due to the discharge of process wastes to the former subsurface structures by the former manufacturing firms (e.g., Grumman, Republic) at the Site. The process wastes would likely include metals plating solutions/sludge, solvents and paints, which are typically used in the manufacturing of airplanes and engine parts. These process wastes are consistent with the subsurface building structure material (liquid material) impacts identified during the implementation of the IWP and SI.

The source of the detected constituents in the metal box at TP-33 is likely due to the accumulation of precipitation, since the top of the box is only 2 ft bls.

The results of the risk assessment concluded that the constituent concentrations in the subsurface building structure material (liquid material) do not pose a current or future risk above a de minimis risk level to human health at the Site (see Section 9.2.5).

- Plating Area – The black stained material identified during a previous investigation was not observed during the implementation of the IWP or SI in any of the soil borings or test pits/trenches performed in this area. However, the area where the stained material was identified during the previous investigation was excavated and disposed offsite as part of the remedial action for the green material (see discussion below).

  The green stained material observed during a previous investigation was not observed during the sampling of soil borings during the IWP or SI; however, this material was identified during the test pit/trenching activities. The analytical results of this material indicated that VOCs were detected at concentrations that exceed the NYSDEC RSCOs and chromium was detected at a concentration that exceeded its USEPA Regulatory Level. Subsequently, the green material was excavated and disposed offsite as part of a remedial action.

- Concrete Structure at Test Pit TP-16 – The black stained wood identified in the concrete structure at Test Pit TP-16 (former plating area) during the SI was excavated and disposed offsite as part of a remedial action.

- Manhole in Eastern-Central Portion of Site – The elemental mercury, mixed with green material and typical Site fill material, was excavated from the manhole in the eastern-central portion of the Site, and disposed offsite as part of a remedial action. Additionally, the sediments inside the west and north pipes leading into this manhole (i.e., approximately 5 ft into the pipes from the manhole) were removed and disposed offsite.

  The CN detected in the subsurface structure material (i.e., in the green material and in the sediments in the north and west pipes of the manhole located in the eastern-central portion of the Site) has been removed and disposed offsite as part of a remedial action.

8.2.3 Groundwater

- The horizontal and vertical extent of the VOCs detected in groundwater has been delineated at the Site. The VOCs detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs are present in three overlapping plumes (i.e., TCE, PCE, and TCA). The three plumes are continuous between the shallow and intermediate zone. The VOCs detected in groundwater at concentrations that exceed the NYSDEC AWQSGVs have a larger distribution in the intermediate zone than in the shallow zone, and the intermediate zone contains higher concentrations of VOCs than in the shallow zone. The VOCs detected at concentrations that exceed the NYSDEC AWQSGVs in the intermediate zone have not impacted the deep zone. Additionally, the results of the risk assessment concluded that the VOC concentrations detected in groundwater that exceed the NYSDEC AWQSGVs do not pose a current or future risk above a de minimis risk level to human health at the Site (see Section 9.2.5).

The sources of the VOCs in groundwater are likely no longer present at the Site. The rationale for this conclusion is:

- that the VOC levels detected in soil or subsurface building structure material from 76 soil borings and 37 test pits/trenches throughout the Site are too low to contribute additional VOCs to the groundwater;

- the absence of DNAPL at the Site; and

- that operations of the former manufacturing firms that likely caused the groundwater impacts ceased operations from 20 years to 50 years ago.

The sources of the VOCs were likely due to the discharge of process wastes to the former subsurface structures by the former manufacturing firms (e.g., Grumman, Republic) at the Site. The process wastes would likely include metals plating solutions/sludge, solvents and paints, which are typically yielded in the manufacturing of airplanes and engine parts. These

process wastes are consistent with the groundwater impacts identified during the implementation of the IWP and SI.

- Degradation products of the predominant VOCs were detected in groundwater at the Site. These degradation products indicate that natural reductive dechlorination is occurring (i.e., anaerobic conditions – lack of oxygen) in the intermediate zone, and to a lesser degree in the shallow zone.

- The SVOCs/BNs detected in the soil or subsurface building structure materials have not impacted groundwater at concentrations that exceed the NYSDEC AWQSGVs.

- Except for chromium, metals detected in groundwater are likely either attributed to the nature of Long Island groundwater or to suspended silt in the samples analyzed. The chromium detected in the groundwater at the Site may be attributed to the green material, which contained high levels of chromium. Please note that the green material identified at the Site has been removed and disposed offsite as part of a remedial action. Additionally, the results of the risk assessment concluded that the metals (including chromium) concentrations detected in groundwater that exceed the NYSDEC AWQSGVs do not pose a current or future risk above a de minimis risk level to human health at the Site (see Section 9.2.5).

- The CN detected in Monitoring Well MW-28 (shallow zone) that only slightly exceeds its NYSDEC AWQSGV may be attributed to the CN detected in the subsurface building structure material (solid material) located in the west and north pipes leading from the manhole at Test Pit TP-23, located in the eastern-central portion of the Site. Specifically, the CN was detected in sediment approximately 5 ft into the pipes leading from the manhole. The CN detection in the groundwater at Monitoring Well MW-28 is located in the estimated downgradient flow direction from these pipes, and is limited in extent to the immediate area surrounding this well. It is important to note that the sediments in these pipes (the first 5 ft leading from the manhole) and the material within the manhole has been removed and disposed offsite as part of a remedial action. Additionally, the results of the risk assessment concluded that the CN concentrations detected in groundwater that exceeds its NYSDEC AWQSGV does not pose a current or future risk above a de minimis risk level to human health at the Site (see Section 9.2.5).

8.2.4 Soil Gas

- VOCs were detected in soil gas several feet above the locations where the highest VOCs were previously detected in the shallow groundwater zone. This indicates that the VOCs are off gassing from these areas of the shallow groundwater zone. The results of the risk assessment concluded that the VOC concentrations detected in soil gas do not pose a current or future risk above a de minimis risk level to human health at the Site (see Section 9.2.5).

8.2.5 Risk Assessment

- The results of the risk assessment concluded that the constituents (with exceptions noted below) detected in the soil, groundwater, subsurface building structure material (solid and liquid), and soil gas do not pose a risk above a de minimis risk level to human health in the Site's current status, to residents occupying future buildings, and to construction workers with regard to both carcinogenic and noncarcinogenic health effects. The results of the IWP and SI indicate that the Site can be redeveloped for its intended future use (i.e., residential).

- Under the exposure scenarios described there is only one situation where the ILCR exceeds the de minimis risk level of 1E-6 in an average (PAEI) exposure scenario. This exceedance occurs when the risk from estimated consumption of benzo[a]pyrene in home grown produce for children and youth(s) are combined. There are inherent uncertainties in this evaluation because no literature has been identified that supports any specific uptake rate for SVOCs into plant material nor was there any information available on possible distribution and metabolism of SVOCs within any plant. This hypothetical pathway is not sufficiently supported by experimental data for risk levels that marginally exceed (less than an order of magnitude) a de minimis level to be considered a risk, nor should it be used to justify any form of remedial activity.

- All other exceedances of the target risk level occurred in the upper bound (RMEI) exposure scenarios. With the use of the maximum detected chemical concentration and the associated health protective assumptions, there is a considerable level of exaggeration of potential risks. Use of average concentrations of Site-related constituents to estimate potential risk is more representative, but still likely exaggerates any anticipated exposure that could occur after redevelopment is complete. Thus, it is concluded that the residual VOCs, SVOCs, and metals in the soil, groundwater, and subsurface building structures will not negatively impact indoor air quality and will not pose any excessive human health risk to residents occupying future buildings and for construction workers performing activities consistent with these exposure conditions and with regard to both carcinogenic and noncarcinogenic health effects.

- It is understood that additional fill will likely be placed on the Site prior to property development; thus, during construction the likelihood of contact with soils impacted by Site related chemicals or to groundwater will be reduced by the presence of the additional soil cover. Added soil could also be mixed with Site soil, which ultimately will dilute concentrations of COPCs. After construction is completed, buildings and impervious surfaces will cover much of the Site and there will be likely be little opportunity for contact with any Site related constituents in soil and groundwater.

- Although the levels of VOCs detected in groundwater at the Site exceed the NYSDEC AWQSGVs, their occurrence does not pose a current or future risk above a de minimis risk level to human health because groundwater at or from the Site is not used as a source of drinking water.

- Groundwater impacts that migrate downgradient beyond the southern Site boundary (south of Toms Point Lane) would likely not pose a current or future risk above a de

minimis risk level to human health because the levels of VOCs detected in the shallow groundwater zone and in the soil gas along southern Site boundary does not pose a current or future risk above a de minimis risk level to human health.

8.2.6 General

- Because the investigations at the Site are under the auspices of the NYSDEC Voluntary Cleanup Program, the ARAR process is not required, but provided as means of completeness.

- All investigation activities including sampling performed during the IWP and SI have been completed in accordance with the VCA. The investigation activities generated a significant amount of data that included the Site media characterization (i.e., soil, subsurface building structure material, groundwater, and soil gas), delineation of impacts, and whether any of the identified impacts would pose a current or future risk above a de minimis risk level to human health at the Site.

- The results of the investigation activities indicate that no further investigation activities are necessary in connection with this Site.

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Table 1. Summary of Past and Current Site Owners, Owner Address and Telephone Number, and Approximate Dates of Ownership, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Owners	Last Known Owner Address and Telephone Number	Approximate Dates of Ownership	Relationship to Current Owner
Pre-United States (US) General Services Administration (GSA)	Unknown	Unknown	None
US GSA	Mr. William Mullery, P.E. Department of the Army New York District Corps of Engineers Jacob K. Javits Federal Building New York, New York 10278-0090	1943 - 1958	None
Thypin Realty Company	Mr. Richard Thypin P.O. Box 309 Princeton, New Jersey 08452	1958 - 1983	Current Owner
Manhasset Bay Associates	Mr. Richard Thypin P.O. Box 309 Princeton, New Jersey 08452	1983 - 1997	Sold to MBA-Manorhaven LLC
MBA - Manorhaven, LLC	Mr. Richard Thypin P.O. Box 309 Princeton, New Jersey 08452	1997 - Present	Current Owner

Table 2. Summary of Past and Current Site Operators, Operator Address and Telephone Number, Approximate Dates of Operation, and Type of Operation, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Operators	Address and Telephone Number	Approximate Dates of Operation	Type of Operation
Unknown	Unknown	Pre - 1916	Unknown
First Yale Naval Aviation Unit	U.S. Navy	1916-Unknown	Flight Training for the US Navy Personnel
Curtiss-Wright Flying School	Unknown	1916-Unknown	Flight School
Curtiss-Wright Services, Inc.	Unknown	1919-Unknown	Airline for Flying Boats
American Aeronautical Corporation	Unknown	1929 - 1931	Manufacturer of Seaplanes, Flying School and Air Terminal
Pan American Airways	14 Aviation Avenue Portsmouth, N.H. 03801	1933-1943	Airline
Marine Airport Corporation	Unknown	1936 - Early 1940s	Unknown
Grumman Aircraft Engineering Corporation	Northrop Grumman 1840 Century Park East Los Angeles, California 90067 (310)553-2076	1943-1946	Manufacturer of Airplanes and Airplane Parts
Republic Aviation Corporation	Farmingdale, New York 11735	1951-1958	Manufacturer of Jet Fighter Bomber Wings
Port Washington Metal Products Corporation	Unknown	1951 - 1958	Manufacturer of Metal Heaters
Thypin Steel, Inc.	Mr. Richard Thypin P.O. Box 309 Princeton, New Jersey 08452	1958 - 1988	Storage and Cutting of Steel Products
Unknown	Unknown	1961 - Unknown	Manufacturer of Doors and Windows
United Utensils Company, Inc. (Utensco)	Unknown	1966 - 1985	Manufacturer of Steel and Plastic Vessels
Sound Spars	Unknown	1975 - 1980	Manufacturer of Sailboat Masts

Note: The Site has been vacant since 1988. The buildings and structures at the Site were demolished in the early 1990s. The members of MBA-Manorhaven, LLC were the majority shareholders of Thypin Steel, Inc.

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	GW-1	GW-2	GW-3	GW-4	GW-5	GW-6	GW-7	GW-8	GW-9	GW-10	GW-11
		Sample Date:	6/9/99	6/9/99	6/9/99	6/9/99	6/9/99	6/9/99	6/9/99	6/9/99	6/9/99	6/9/99	6/9/99
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.7 J
1,1,2,2-Tetrachloroethane	5		5 U	5 U	5 U	5 U	5 U	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	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	5 U	0.6 J	5 U	5 U	5 U
1,1-Dichloroethene	5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	6	5 U	5 U	5 U
1,1-Dichloropropene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		5 U	5 U	5 U	5 U	5 U	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	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	7		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	-		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,2-Dichloroethene	5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	24	5 U	5 U	2 J
cis-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U	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	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	5		5 U	5 U	5 U	5 U	125	5 U	5 U	5 U	5 U	5 U	5 U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		5 U	21	5 U	5 U	5 U	5 U	5 U	5 U	0.3 J	5 U	6
trans-1,2-Dichloroethene	5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 J	5 U	5 U	5 U
trans-1,3-Dichloropropene	5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5		5 U	0.6 J	5 U	5 U	5 U	5 U	2 J	66	4 J	13	19
Trichlorofluoromethane	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	13	10 U	10 U	10 U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[TM] Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	GW-12	GW-13	GW-14	GW-15	GW-16	MW-1	MW-1	MW-2	MW-2	REP-1	MW-21
		Sample Date:	9/28/99	9/28/99	9/28/99	9/28/99	10/1/99	6/9/99	6/14/01	6/9/99	6/15/01	6/15/01	7/6/01
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	5		5U	5U	5U	5U	2.5J	5U	5U	0.6J	5U	5U	68
1,1,2,2-Tetrachloroethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,1,2-Trichloroethane	1		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloroethane	5		5U	5U	5U	5U	5U	5U	5U	0.5J	5U	5U	8
1,1-Dichloroethene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	7
1,1-Dichloropropene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,2-Dichloroethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,2-Dichloropropane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
2-Butanone	-		NA	NA	NA	NA	25U	NA	10U	NA	10UJ	10U	10U
Acetone	50		NA	NA	NA	NA	20U	NA	10U	NA	10UJ	10U	10U
Bromodichloromethane	50		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Bromoform	50		5U	5U	5U	5U	5U	NA	5U	NA	5U	5U	5U
Carbon Disulfide	60		NA	NA	NA	NA	5U	5U	5U	5U	5U	5U	5U
Carbon Tetrachloride	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Chlorobenzene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Chloroethane	5		5U	5U	5U	5U	5U	10U	10U	10U	10U	10U	10U
Chloroform	7		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Chloromethane	-		5U	5U	5U	5U	5U	10U	10U	10U	10U	10U	10U
cis-1,2-Dichloroethene	5		5U	5U	5U	5U	5U	5U	5U	1J	5U	5U	16
cis-1,3-Dichloropropene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Dibromochloromethane	50		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Methylene Chloride	5		5U	5U	5U	5U	5U	5U	4J	5U	0.7J	2J	5U
MTBE	10		NA	NA	NA	NA	1U	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		5U	5U	5U	5U	5U	5U	5U	3J	3J	3J	22
trans-1,2-Dichloroethene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
trans-1,3-Dichloropropene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Trichloroethene	5		28	5U	5U	5U	1.1J	5U	5U	26	17	18	100
Trichlorofluoromethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Vinyl Chloride	2		5U	5U	5U	5U	10U	10U	2U	10U	2U	2U	2U
Benzene	1		NA	NA	NA	NA	1U	NA	5U	NA	5U	5U	5U
Ethylbenzene	5		NA	NA	NA	NA	1U	NA	5U	NA	5U	5U	5U
o-Xylene	5		NA	NA	NA	NA	1U	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	2U	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	1U	NA	5U	NA	5U	5U	5U
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	5U	NA	5U	5U	5U

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[TM] Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	MW-2D	MW-21	MW-21	MW-22	MW-22	MW-23	MW-23	MW-23I	MW-24	MW-24	MW-25
		Sample Date:	6/27/01	11/27/00	6/14/01	11/29/00	6/21/01	11/28/00	6/14/01	7/2/01	11/28/00	6/15/01	11/29/00
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,1,2,2-Tetrachloroethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,1,2-Trichloroethane	1		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloroethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloroethene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloropropene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,2-Dichloroethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,2-Dichloropropane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
2-Butanone	-		10U	NA	10U	NA	10U	NA	10U	10U	NA	10UJ	NA
Acetone	50		10U	NA	10U	NA	10U	NA	10U	10U	NA	10UJ	NA
Bromodichloromethane	50		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Bromoform	50		5U	NA	5U	NA	5U	NA	5U	5U	NA	5U	NA
Carbon Disulfide	60		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Carbon Tetrachloride	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Chlorobenzene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Chloroethane	5		10U	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	7		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Chloromethane	-		10U	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
cis-1,2-Dichloroethene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
cis-1,3-Dichloropropene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Dibromochloromethane	50		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Methylene Chloride	5		5U	5U	5U	5U	4J	5U	4J	5U	5U	1J	5U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		5U	5U	5U	5U	5U	3J	2J	5U	5U	5U	5U
trans-1,2-Dichloroethene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
trans-1,3-Dichloropropene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Trichloroethene	5		0.7J	5U	5U	5U	5U	0.8J	5U	5U	13	7	5U
Trichlorofluoromethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Vinyl Chloride	2		2U	10U	2U	10U	10U	10U	2U	2U	10U	2U	10U
Benzene	1		5U	NA	5U	NA	5U	NA	5U	5U	NA	5U	NA
Ethylbenzene	5		5U	NA	5U	NA	5U	NA	5U	5U	NA	5U	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		2J	NA	5U	NA	5U	NA	5U	5U	NA	5U	NA
Xylenes (total)	5		5U	NA	5U	NA	5U	NA	5U	5U	NA	5U	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

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ft bls - Feet below land surface

B - Compound detected in laboratory blank

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- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	MW-25	MW-26	MW-26	MW-26I	MW-26D	MW-27	MW-27	MW-28	MW-28	MW-29S	MW-29I
		Sample Date:	6/15/01	11/27/00	6/19/01	6/19/01	7/9/01	11/27/00	6/13/01	11/27/00	6/13/01	6/29/01	7/2/01
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	5		5U	5U	5U	3J	5U	2J	0.5J	5	4J	5U	5U
1,1,2,2-Tetrachloroethane	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
1,1,2-Trichloroethane	1		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloroethane	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloroethene	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloropropene	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
1,2-Dichloroethane	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
1,2-Dichloropropane	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
2-Butanone	-		10UJ	NA	10U	50U	10U	NA	10U	NA	10U	10U	10U
Acetone	50		10UJ	NA	10U	50U	10U	NA	10U	NA	10U	10U	10U
Bromodichloromethane	50		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
Bromoform	50		5U	NA	5U	25U	5U	NA	5U	NA	5U	5U	5U
Carbon Disulfide	60		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
Carbon Tetrachloride	5		5U	5U	5U	25U	5U	5U	0.8J	2J	0.9J	5U	5U
Chlorobenzene	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
Chloroethane	5		10U	10U	10U	50U	10U	10U	10U	10U	10U	10U	10U
Chloroform	7		5U	5U	5U	25U	5U	5U	6	5U	1J	5U	5U
Chloromethane	-		10U	10U	10U	50U	10U	10U	10U	10U	10U	10U	10U
cis-1,2-Dichloroethene	5		5U	5U	5U	160	5U	5U	5U	5U	5U	5U	5U
cis-1,3-Dichloropropene	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
Dibromochloromethane	50		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
Methylene Chloride	5		1J	5U	0.6J	8.1B	5U	5U	0.5JB	5U	5U	5U	5U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		0.8J	1J	2J	25U	5U	11	13	36	22	5	5U
trans-1,2-Dichloroethene	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
trans-1,3-Dichloropropene	5		5U	5U	5U	25U	5U	5U	5U	5U	5U	5U	5U
Trichloroethene	5		5U	5U	5U	660	5U	6	3J	7	7	2J	5U
Trichlorofluoromethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Vinyl Chloride	2		2U	10U	10U	50U	2U	10U	2U	10U	2U	2U	2U
Benzene	1		5U	NA	5U	25U	0.7U	NA	5U	NA	5U	5U	5U
Ethylbenzene	5		5U	NA	5U	25U	5U	NA	5U	NA	5U	5U	5U
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		5U	NA	5U	25U	0.5J	NA	5U	NA	5U	5U	5U
Xylenes (total)	5		5U	NA	5U	25U	5U	NA	5U	NA	5U	5U	5U

[1] - New York State Department of Environmental Conservation (NYSDEC)
Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

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ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	MW-29D	MW-30S	MW-30I	MW-31S	MW-31I	MW-31D	MW-32S	MW-33I	REP-2	MW-33D	REP-3	MW-33S
		Sample Date:	7/19/01	6/18/01	6/28/01	6/29/01	7/11/01	7/16/01	6/21/01	6/26/01	6/26/01	7/13/01	7/13/01	6/26/01
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	5		5U	5U	5U	52	51	5U	8	5U	5U	5U	5U	5U
1,1,2,2-Tetrachloroethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,1,2-Trichloroethane	1		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloroethane	5		5U	5U	5U	10	8	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloroethene	5		5U	5U	5U	3J	5	5U	5U	5U	5U	5U	5U	5U
1,1-Dichloropropene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,2-Dichloroethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
1,2-Dichloropropane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
2-Butanone	-		10U	10U	10U	10U	10U	10UJ	10U	10U	10U	10U	10U	10U
Acetone	50		10U	10U	10U	10U	10U	10UJ	10U	10U	10U	10U	10U	10U
Bromodichloromethane	50		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Bromoform	50		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Carbon Disulfide	60		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	2J	5U
Carbon Tetrachloride	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Chlorobenzene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Chloroethane	5		10U	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	7		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Chloromethane	-		10U	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
cis-1,2-Dichloroethene	5		5U	5U	5U	76	110	5U	5U	5U	5U	5U	5U	2J
cis-1,3-Dichloropropene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Dibromochloromethane	50		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Methylene Chloride	5		2JB	5U	5U	5U	5U	9	4J	5U	5U	5U	5U	5U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		5U	5U	1J	100	21	5U	5	5U	5U	5U	5U	1J
trans-1,2-Dichloroethene	5		5U	5U	5U	2J	1J	5U	5U	5U	5U	5U	5U	5U
trans-1,3-Dichloropropene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Trichloroethene	5		5U	3J	51	100	55	5U	4J	21	25	5U	5U	30
Trichlorofluoromethane	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Vinyl Chloride	2		2U	10U	2U	2U	2U	2U	10U	2U	2U	2U	2U	2U
Benzene	1		0.7U	5U	5U	5U	0.7U	0.7U	5U	5U	5U	0.7U	0.7U	5U
Ethylbenzene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Xylenes (total)	5		5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

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Note:

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Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

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Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	MW-34S	MW-34I	MW-34D	MW-35S	MW-35I	MW-35D	SB-7	SB-7	SB-12	SB-12	SB-23
		Sample Date:	6/29/01	7/6/01	7/19/01	6/28/01	6/28/01	7/19/01	11/9/00	11/9/00	11/9/00	11/9/00	11/10/00
		Sample Depth (ft bls):	-	-	-	-	-	-	12-14	34 - 36	10-12	34 - 36	10-12
1,1,1-Trichloroethane	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
1,1,2,2-Tetrachloroethane	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
1,1,2-Trichloroethane	1		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
1,1-Dichloroethane	5		5U	3J	5U	5U	250U	5U	5U	5U	5U	5U	5U
1,1-Dichloroethene	5		5U	12	5U	5U	250U	5U	5U	5U	5U	5U	5U
1,1-Dichloropropene	5		5U	5U	5U	5U	250U	5U	5U	5U	5U	5U	5U
1,2-Dichloroethane	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
1,2-Dichloropropane	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
2-Butanone	-		10U	20U	10U	10U	500U	10U	NA	NA	NA	NA	NA
Acetone	50		10U	20U	10U	10U	500U	10U	NA	NA	NA	NA	NA
Bromodichloromethane	50		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	0.6J
Bromoform	50		5U	10U	5U	5U	250U	5U	NA	NA	NA	NA	NA
Carbon Disulfide	60		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
Carbon Tetrachloride	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
Chlorobenzene	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
Chloroethane	5		10U	20U	10U	10U	500U	10U	10U	10U	10U	10U	10U
Chloroform	7		5U	10U	5U	5U	250U	5U	5U	0.6J	5U	5U	0.7J
Chloromethane	-		10U	20U	10U	10U	500U	10U	10U	10U	10U	10U	10U
cis-1,2-Dichloroethene	5		5U	41	5U	5U	52J	5U	7J	0.6J	5U	5U	5U
cis-1,3-Dichloropropene	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
Dibromochloromethane	50		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
Methylene Chloride	5		5U	10U	2JB	5U	61JB	2JB	42JB	5U	5U	5U	5U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
trans-1,2-Dichloroethene	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
trans-1,3-Dichloropropene	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
Trichloroethene	5		5U	300	5U	5U	5500	0.3J	810	110	1J	4J	5U
Trichlorofluoromethane	5		5U	10U	5U	5U	250U	5U	5U	5U	5U	5U	5U
Vinyl Chloride	2		2U	14	2U	2U	100U	2U	10U	10U	10U	10U	10U
Benzene	1		5U	10U	0.7U	5U	250U	0.7U	NA	NA	NA	NA	NA
Ethylbenzene	5		5U	10U	5U	5U	250U	5U	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		5U	10U	1J	5U	250U	5U	NA	NA	NA	NA	NA
Xylenes (total)	5		5U	10U	5U	5U	250U	5U	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water Quality Standards and Guidance Values (AWQSGVs)

µg/L -Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB 23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB 53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-23	SB-24	SB-24	SB-31	SB-31	SB-31	SB-31	SB-31	SB-32	SB-32	SB-32
		Sample Date:	11/10/00	11/8/00	11/8/00	2/28/01	2/28/01	2/28/01	2/28/01	2/28/01	2/26/01	2/26/01	2/26/01
		Sample Depth (ft bls):	34 - 36	10-12	34 - 36	16 - 18	18 - 20	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30
1,1,1-Trichloroethane	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		5U	3J	5U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		0.4J	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		10U	10U	10U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		0.6J	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		10U	10U	10U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		5U	2J	3J	1U	1U	1	5.6	1U	1U	1U	1U
cis-1,3-Dichloropropene	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		5U	5JB	4JB	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		5U	270	300	2	5.9	4.4	17.8	3.2	6.3	7.9	6.2
Trichlorofluoromethane	5		5U	5U	5U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		10U	10U	10U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

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B - Compound detected in laboratory blank

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- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[TM] Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-32	SB-32	SB-32	SB-32	SB-32	SB-32	SB-32	SB-32	SB-33	SB-33
		Sample Date:	2/26/01	2/26/01	4/11/00	4/11/00	4/11/01	4/11/01	4/11/01	4/23/01	2/27/01	2/27/01
		Sample Depth (ft bls):	38 - 40	48 - 50	66 - 68	71 - 73	81 - 83	91 - 93	101 - 103	111 - 113	12-14	18 - 20
1,1,1-Trichloroethane	5		1U	1U	1U	1U	1U	1	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U	1.9
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	2	1.3	1U	1U	2
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	17.9
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	1.4	1U	3.5	2.3	1U	1U	167
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	3.7
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	4.2
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		12.7	1U	37.2	80.8	39.1	219	112	1.3	1.5	911
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	1U	1U	1U	1U	1U	1U	NA	NA
Ethylbenzene	5		NA	NA	1U	1U	1U	1U	1U	1U	NA	NA
o-Xylene	5		NA	NA	1U	1U	1U	1U	1U	1U	NA	NA
m+p-Xylene	5		NA	NA	1U	1U	1U	1U	1U	1U	NA	NA
Toluene	5		NA	NA	1U	1U	1U	1U	1U	1U	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-33	SB-33	SB-33	SB-34	SB-34	SB-34	SB-34	SB-34	SB-35	SB-35	SB-35
		Sample Date:	2/27/01	2/27/01	2/27/01	2/28/01	2/28/01	2/28/01	2/28/01	2/28/01	3/1/01	3/1/01	3/1/01
		Sample Depth (ft bls):	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30	38 - 40	48 - 50	12-14	18 - 20	28 - 30
1,1,1-Trichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	2	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1.9	1U	2.6	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		6.1	11.1	1U	3.8	1U	1	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	5.1	1U	3.9	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	9.3	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		64.7	18.3	2.2	194	3	5.5	1U	1.5	1U	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1	1U	1U	3.8	1U	1U	1U	1U	1.2	2.7	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	1.4	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		567	883	128	861	44.4	426	5.4	45.9	3.8	6.7	3.2
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

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NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

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Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB 49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-35	SB-35	SB-36	SB-36	SB-36	SB-37	SB-37	SB-37	SB-38	SB-38	SB-38
		Sample Date:	3/1/01	3/1/01	3/7/01	3/7/01	3/7/01	3/8/01	3/8/01	3/8/01	3/9/01	3/9/01	3/9/01
		Sample Depth (ft bls):	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30	14 - 16	18 - 20	28 - 30	12-14	18 - 20	28 - 30
1,1,1-Trichloroethane	5		1U	1U	3.3	1.4	1U	1U	1U	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	1U	1.2	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		2.3	2.2	2	1U	1U	1U	1U	1U	1U	1U	1U
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB 7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-38	SB-38	SB-39	SB-39	SB-39	SB-39	SB-39	SB-40	SB-40	SB-40	SB-40
		Sample Date:	3/9/01	3/9/01	3/9/01	3/12/01	3/12/01	3/12/01	3/12/01	3/13/01	3/13/01	3/13/01	3/13/01
		Sample Depth (ft bls):	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30	38 - 40
1,1,1-Trichloroethane	5		1U	1U	1U	95.6	23.8	1U	2.1	1U	1U	1.3	3.1
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1.1	2.3	1U	1U	1U	1U	1U	1.7	1U
1,1-Dichloroethane	5		1U	1U	1U	16.3	4.2	1U	1U	1U	1.3	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	2.3	1U	1U	1U	1U	22.6	2.7	2.2
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	119	22.6	1U	3.1	1U	137	30.7	18.2
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	1U	17	34.7	13.5	1U	2.1	1U	8.6	2.4	3.1
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	3.6	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		1U	1U	8.3	59.1	17.1	1U	3.5	16.6	1880	706	638
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L -Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[TM] Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-40	SB-40	SB-40	SB-40	SB-40	SB-40	SB-41	SB-41	SB-41	SB-41
		Sample Date:	3/13/01	4/12/01	4/12/01	4/12/01	4/12/01	4/12/01	3/2/01	3/2/01	3/2/01	3/2/01
		Sample Depth (ft bls):	48 - 50	61 - 63	71 - 73	81 - 83	91 - 93	101 - 103	12-14	18 - 20	28 - 30	38 - 40
1,1,1-Trichloroethane	5		1.1	1U	1U	1U	1U	1U	21.7	77.4	171	95.5
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	6.8	12.2	21.6	18.5
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	2.4	5.4	3.9
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		6	1U	1U	1.1	1U	1U	23.4	88	258	186
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	1U	1U	1U	1U	1U	26.7	72.1	40.5	30.5
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	2.3	3.8	2.5
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		282	1U	19.1	49.7	9.1	28.8	33.9	72.6	89.5	66.6
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	1U	1U	1U	1U	1U	NA	NA	NA	NA
Ethylbenzene	5		NA	1U	1U	1U	1U	1U	NA	NA	NA	NA
o-Xylene	5		NA	1U	1U	1U	1U	1U	NA	NA	NA	NA
m+p-Xylene	5		NA	1U	1U	1U	1U	1U	NA	NA	NA	NA
Toluene	5		NA	1U	1U	1U	1U	1U	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC)
Ambient Water Quality Standards and Guidance Values (AWQSGVs)

µg/L -Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 thuough GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch® Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-41	SB-41	SB-41	SB-41	SB-41	SB-41	SB-41	SB-41	SB-41	SB-42
		Sample Date:	3/2/01	4/4/01	4/4/01	4/4/01	4/5/01	4/5/01	4/4/01	4/1/01	4/19/01	3/12/01
		Sample Depth (ft bls):	48 - 50	61 - 63	71 - 73	81 - 83	91 - 93	101 - 103	111 - 113	121 - 123	131 - 133	12-14
1,1,1-Trichloroethane	5		82.2	3	21.3	1.7	6.9	4	1.9	1U	1U	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1.3	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		16.4	1U	4	1U	1.5	1.1	1U	1U	1U	1U
1,1-Dichloroethene	5		3.4	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		148	7.3	62.2	5.2	14.7	12.7	6.4	1.2	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	1U	NA
Tetrachloroethene	5		29.2	1.1	5.6	1U	2.2	1.4	1U	1U	1U	1U
trans-1,2-Dichloroethene	5		1.8	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		58.8	2.9	16.5	1.3	5.8	3.7	1.8	1U	1U	4.3
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	1U	1U	1U	1U	1U	1U	1U	1U	NA
Ethylbenzene	5		NA	1U	1U	1U	1U	1U	1U	1U	1U	NA
o-Xylene	5		NA	1U	1U	1U	1U	1U	1U	1U	1U	NA
m+p-Xylene	5		NA	1U	1U	1U	1U	1U	1U	1U	1U	NA
Toluene	5		NA	1U	1U	1U	1U	1U	1U	1U	1U	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC)
Ambient Water Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-42	SB-42	SB-42	SB-42	SB-43	SB-43	SB-43	SB-43	SB-43	SB-44	SB-44
		Sample Date:	3/12/01	3/12/01	3/12/01	3/12/01	3/2/01	3/2/01	3/7/01	3/7/01	3/7/01	3/1/01	3/1/01
		Sample Depth (ft bls):	18 - 20	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20
1,1,1-Trichloroethane	5		1U	37.3	1.8	1U	10.9	138	79	156	57.7	1U	14.8
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	3.1	3.3	2.4	1U	1	1U	1.1
1,1-Dichloroethane	5		2.5	12.4	6.5	1U	4.6	15.5	13.9	21.4	13.9	1U	3.7
1,1-Dichloroethene	5		6.9	9.3	3.1	1U	1U	1U	3.8	7.9	3.1	1U	1
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	5.2
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		37.8	49	1U	1.2	12	34.7	32.9	86	84.6	1U	4.4
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		6.6	13.1	1U	1U	51.2	53.8	38.7	64.9	20.9	1U	17.6
trans-1,2-Dichloroethene	5		1	1U	1U	1U	1U	1.2	1U	1.9	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		521	554	476	35.4	23.3	76.4	52.3	104	51.2	5.5	20.7
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	2	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

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B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[TM] Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-44	SB-44	SB-44	SB-44	SB-44	SB-45	SB-45	SB-45	SB-45	SB-45	SB-45
		Sample Date:	3/1/01	3/1/01	3/1/01	4/10/01	4/10/01	3/8/01	3/8/01	3/8/01	3/8/01	3/8/01	4/11/01
		Sample Depth (ft bls):	28 - 30	38 - 40	48 - 50	61 - 63	71 - 73	14 - 16	18 - 20	28 - 30	38 - 40	48 - 50	61 - 63
1,1,1-Trichloroethane	5		485	48.6	1U	1U	1U	1U	1U	4.3	4.2	2.7	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		5.5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		27.4	5.6	1U	1U	1U	1U	1U	4	3.8	6.9	1U
1,1-Dichloroethene	5		39	4.1	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Terrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1.5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		119	10.3	1U	1U	1U	1U	1U	7.1	6.7	6.2	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		86.2	1U	1U	1U	1U	1U	1U	1.2	1U	1U	1U
trans-1,2-Dichloroethene	5		2.5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		229	39.9	1U	1U	1U	154	83.9	236	265	175	7.3
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	1U	1U	1U	1U	NA	1U	1U
Ethylbenzene	5		NA	NA	NA	NA	1U	1U	1U	1U	NA	1U	1U
o-Xylene	5		NA	NA	NA	NA	1U	1U	1U	1U	NA	1U	1U
m+p-Xylene	5		NA	NA	NA	NA	1U	1U	1U	1U	NA	1U	1U
Toluene	5		NA	NA	NA	NA	1U	1U	1U	1U	NA	1U	1U
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water Quality Standards and Guidance Values (AWQSGVs)

µg/L -Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-45	SB-45	SB-45	SB-45	SB-45	SB-46	SB-46	SB-46	SB-46	SB-46
		Sample Date:	4/11/01	4/11/01	4/11/01	4/12/01	4/12/01	3/12/01	3/12/01	3/12/01	3/12/01	3/12/01
		Sample Depth (ft bls):	71 - 73	81 - 83	91 - 93	101 - 103	111 - 113	12-14	18 - 20	28 - 30	38 - 40	48 - 50
1,1,1-Trichloroethane	5		1U	1U	1U	1U	1U	1U	1U	2.8	1U	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2 Dichloroethene	5		1U	1U	1U	1U	1U	1U	102	2.1	3.9	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	3	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		4.7	3.8	9.1	1U	1.7	2.3	339	17.4	22.2	1.8
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		1U	1U	1U	1U	1U	NA	NA	NA	NA	NA
Ethylbenzene	5		1U	1U	1U	1U	1U	NA	NA	NA	NA	NA
o-Xylene	5		1U	1U	1U	1U	1U	NA	NA	NA	NA	NA
m+p-Xylene	5		1U	1U	1U	1U	1U	NA	NA	NA	NA	NA
Toluene	5		1U	1U	1U	1U	1U	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-47	SB-47	SB-47	SB-47	SB-47	SB-48	SB-48	SB-48	SB-49	SB-49	SB-49
		Sample Date:	3/9/01	3/9/01	3/9/01	3/9/01	3/9/01	2/22/01	2/22/01	2/22/01	3/2/01	3/2/01	3/2/01
		Sample Depth (ft bls):	12-14	18 - 20	28 - 30	38 - 40	48 - 50	11-13	18 - 20	28 - 30	12-14	18 - 20	28 - 30
1,1,1-Trichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	4	1U	1.1
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	2.8	1.5	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		4.5	1U	1U	1U	1U	2.4	3.1	1U	5.2	1U	2.7
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		1U	1U	1U	1U	1U	32.3	17.2	2.9	2.7	1U	1U
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1.3
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m|p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-49	SB-49	SB-50	SB-50	SB-50	SB-50	SB-53	SB-53	SB-53	SB-54	SB-54
		Sample Date:	3/2/01	3/2/01	3/2/01	3/2/01	3/2/01	3/2/01	3/13/01	3/13/01	3/13/01	3/15/01	3/15/01
		Sample Depth (ft bls):	38 - 40	48 - 50	12-14	18 - 20	28 - 30	38 - 40	14 - 16	18 - 20	28 - 30	14 - 16	18 - 20
1,1,1-Trichloroethane	5		1	1U	1U	1U	1U	1U	1.6	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		3.2	2.8	1U	1U	1U	1U	3.6	1U	1U	1.3	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		1.2	1.6	1U	1U	1U	1U	12.5	2.2	1.6	2.2	1U
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC)
Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[TM] Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-54	SB-54	SB-54	SB-55	SB-55	SB-55	SB-55	SB-55	SB-56	SB-56	SB-56
		Sample Date:	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/14/01	3/14/01	3/14/01
		Sample Depth (ft bls):	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20	30 - 32
1,1,1-Trichloroethane	5		1.8	1.3	1U	1U	1U	1U	7.4	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	3.6	2.4	1U	1U	1	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	6	1U	1U	1U	1U	1.3	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		1.8	1U	1U	17.3	1U	2.2	2.1	1.6	10.5	2.1	1.1
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

	Sample Designation:	SB-56	SB-56	SB-57	SB-57	SB-57	SB-57	SB-57	SB-58	SB-58	SB-58	SB-58
	Sample Date:	3/14/01	3/14/01	3/16/01	3/16/01	3/16/01	3/16/01	3/16/01	3/14/01	3/14/01	3/14/01	3/14/01
	Sample Depth (ft bls):	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30	38 - 40	48 - 50	18 - 20	28 - 30	38 - 40	48 - 50
PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)											
1,1,1-Trichloroethane	5	1U	1U	7.5	3.2	30	2.3	11.3	1U	1U	3.2	1U
1,1,2,2-Tetrachloroethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1	1U	1U	1U	1.2	2.9	1U	1.6	1U	1U	1U	1U
1,1-Dichloroethane	5	1U	1U	1.5	1.5	1U	1U	2.4	1U	4.4	3	1U
1,1-Dichloroethene	5	1U	1U	1U	1U	1.6	1U	1U	1U	3.5	1U	1U
1,1-Dichloropropene	5	1U	1U	1U	1U	4.1	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7	1U	1U	1U	1U	2.1	1U	1U	1U	1U	1U	1U
Chloromethane	-	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5	1U	1U	3	4.1	3.9	1.2	4.4	1U	402	58.2	1.2
cis-1,3-Dichloropropene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5	1U	1U	13.9	19.7	50.7	3.8	28.5	1U	1.8	1.1	1U
trans-1,2-Dichloroethene	5	1U	1U	1U	1U	1U	1U	1U	1U	7.2	1.8	1U
trans-1,3-Dichloropropene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5	1U	1U	8.2	1U	31.6	5	14.6	1U	512	283	11.3
Trichlorofluoromethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[TM] Groundwater Samples	SB-31 through SB-49 and SB-51 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-59	SB-59	SB-59	SB-59	SB-60	SB-60	SB-60	SB-60	SB-60	SB-61	SB-61
		Sample Date:	3/14/01	3/14/01	3/14/01	3/14/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01
		Sample Depth (ft bls):	18 - 20	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30	38 - 40	48 - 50	11-14	18 - 20
1,1,1-Trichloroethane	5		1U	8.2	1U	1U	1U	3.1	1U	1.3	1U	72.8	22.4
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	2.2	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	7.5	8.2	1U	1.2	1U	1U	1U	1.3	14.3	3.5
1,1-Dichloroethene	5		1U	1.7	31.6	1U	1U	1U	1U	1.5	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	8.8
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	20.4
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		220	7.1	157	4.5	1U	1U	1U	1U	1U	1U	15.4
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	2.5	2	1U	1U	1.6	1U	1U	1U	1U	3.6
trans-1,2-Dichloroethene	5		8.7	1U	10.1	1U	1U	1U	1U	1U	1U	20	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		27.3	39.4	832	30	1U	1U	1U	1U	1U	28.1	185
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1]- New York State Department of Environmental Conservation (NYSDEC)
Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L -Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB 49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-61	SB-61	SB-61	SB-62	SB-62	SB-62	SB-62	SB-62	SB-63	SB-63	SB-63
		Sample Date:	3/15/01	3/15/01	3/15/01	3/16/01	3/16/01	3/16/01	3/16/01	3/16/01	3/16/01	3/16/01	3/16/01
		Sample Depth (ft bls):	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30	38 - 40	48 - 50	14 - 16	18 - 20	28 - 30
1,1,1-Trichloroethane	5		2.5	1.8	2.2	1U	1U	1U	1U	1U	47	14	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1.8	1.2	1.3	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1.7	1U	1.2	1U	1U	1U	1U	1U	1.6	1.2	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	6.8	1.9	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		16.8	11.7	10.2	1U	1U	1U	1U	1U	9.3	3.5	1U
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-63	SB-64	SB-64	SB-64	SB-64	SB-64	SB-64	SB-65	SB-65	SB-65	SB-65
		Sample Date:	3/16/01	4/13/01	4/2/01	4/2/01	4/2/01	4/13/01	4/13/01	4/4/01	4/4/01	4/4/01	4/4/01
		Sample Depth (ft bls):	38 - 40	11-13	21 - 23	31 - 33	41 - 43	51 - 53	61 - 63	21 - 23	31 - 33	41 - 43	51 - 53
1,1,1-Trichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	-		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	101	11	1.1	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	1.8	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	2.2	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		1U	1U	1U	393	38.3	7.9	2.8	2.4	1U	1U	1U
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		NA	1U	NA	NA	NA	1U	1U	NA	NA	NA	NA
Ethylbenzene	5		NA	1U	NA	NA	NA	1U	1U	NA	NA	NA	NA
o-Xylene	5		NA	1U	NA	NA	NA	1U	1U	NA	NA	NA	NA
m+p-Xylene	5		NA	1U	NA	NA	NA	1U	1U	NA	NA	NA	NA
Toluene	5		NA	1U	NA	NA	NA	1U	1U	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[SM] Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

	Sample Designation:	SB-66	SB-66	SB-66	SB-66	SB-66	SB-66	SB-66	SB-66	SB-66	SB-67
	Sample Date:	4/3/01	4/3/01	4/3/01	4/3/01	4/4/01	4/4/01	4/4/01	4/4/01	4/4/01	4/6/01
	Sample Depth (ft bls):	21 - 23	31 - 33	41 - 43	51 - 53	61 - 63	71 - 73	81 - 83	91 - 93	101 - 103	11-13
PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)										
1,1,1-Trichloroethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	NA	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5	1U	1U	1U	1U	1.1	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5	33.8	43.5	30	30.9	56.8	24.3	9.5	6.4	2.3	1U
Trichlorofluoromethane	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	2	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Ethylbenzene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
o-Xylene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
m+p-Xylene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Toluene	5	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Xylenes (total)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations	
Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-67	SB-67	SB-67	SB-67	SB-67	SB-67	SB-67	SB-67	SB-67
		Sample Date:	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01
		Sample Depth (ft bls):	21 - 23	31 - 33	41 - 43	51 - 53	61 - 63	71 - 73	81 - 83	91 - 93	101 - 103
1,1,1-Trichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2,2-Terrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	5U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	NA		1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1.1	1.1	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichlorofluoromethane	5		1U	1U	1U	1U	1U	1U	1U	5U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		1U	1U	1U	1U	1U	1U	1U	1U	1U
Ethylbenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
o-Xylene	5		1U	1U	1U	1U	1U	1U	1U	NA	1U
m(p-Xylene	5		1U	1U	1U	1U	1U	1U	1U	NA	1U
Toluene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC)
Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations	GW-1 through GW-16
Geoprobe Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Temporary Monitoring Well Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74
Hydropunch™ Groundwater Samples	

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-68	SB-68	SB-68	SB-68	SB-68	SB-68	SB-68	SB-68	SB-68
		Sample Date:	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01
		Sample Depth (ft bls):	12-14	21 - 23	41 - 43	31 - 33	51 - 53	61 - 63	71 - 73	81 - 83	91 - 93
1,1,1-Trichloroethane	5		8.6	4.6	1U	3.1	1U	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		5U	5U	5U	5U	1U	5U	1U	5U	1U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		3.2	1.5	1U	1.2	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	NA		1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		14.3	10.9	1U	8.6	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		3.2	2.6	1U	2	1U	1U	1U	1U	1U
Trichlorofluoromethane	5		5U	5U	5U	5U	1U	5U	1U	5U	1U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		1U	1U	1U	1U	1U	1U	1U	1U	1U
Ethylbenzene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
o-Xylene	5		NA	NA	NA	NA	1U	NA	1U	NA	1U
m+p-Xylene	5		NA	NA	NA	NA	1U	NA	1U	NA	1U
Toluene	5		1U	1U	1U	1U	1U	1U	1U	1U	1U
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L -Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

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Designations	
Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[TM] Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-68	SB-68	SB-69	SB-69	SB-69	SB-69	SB-69	SB-70
		Sample Date:	4/6/01	4/6/01	4/10/01	4/10/01	4/10/01	4/10/01	4/10/01	4/10/01
		Sample Depth (ft bls):	101 - 103	111 - 113	11-13	21 - 23	31 - 33	41 - 43	51 - 53	12-14
1,1,1-Trichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1.3
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloropropene	5		5U	5U	1U	5U	1U	5U	1U	5U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	NA		NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50		NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	50		NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	5		1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	7		1U	1U	1U	1U	1U	1U	1U	1U
Chloromethane	NA		1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	50		1U	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	5		1U	1U	1U	1U	1U	1U	1U	1U
MTBE	10		NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	1U	7.6	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	5		1U	1U	9.1	1U	1U	1U	1U	1.3
Trichlorofluoromethane	5		5U	5U	1U	5U	1U	5U	1U	5U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1		1U	1U	NA	NA	NA	NA	NA	NA
Ethylbenzene	5		1U	1U	NA	NA	NA	NA	NA	NA
o-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA
m+p-Xylene	5		NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5		1U	1U	NA	NA	NA	NA	NA	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L -Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations	
Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch[tm] Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 3. Summary of Volatile Organic Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation:	SB-71	SB-70	SB-72	SB-72	SB-74	SB-74	SB-74	TP-9D
		Sample Date:	4/19/01	4/10/01	4/19/01	4/19/01	4/24/01	4/24/01	4/24/01	9/30/99
		Sample Depth (ft bls):	12-14	21 - 23	12-14	18-20	11-13	21 - 23	31 - 33	
1,1,1-Trichloroethane	5		1U	1U	1U	1U	1U	1U	1U	5U
1,1,2,2-Tetrachloroethane	5		1U	1U	1U	1U	1U	1U	1U	5U
1,1,2-Trichloroethane	1		1U	1U	1U	1U	1U	1U	1U	5U
1,1-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	5U
1,1-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	5U
1,1-Dichloropropene	5		25U	5U	1U	5U	1U	5U	5U	5U
1,2-Dichloroethane	5		1U	1U	1U	1U	1U	1U	1U	5U
1,2-Dichloropropane	5		1U	1U	1U	1U	1U	1U	1U	5U
2-Butanone	NA		NA	NA	NA	NA	NA	2JB	NA	NA
Acetone	50		NA	NA	NA	NA	1U	1U	1U	NA
Bromodichloromethane	50		1U	1U	1U	1U	1U	1U	1U	5U
Bromoform	50		1U	1U	1U	1U	1U	14	16	5U
Carbon Disulfide	60		1U	1U	1U	1U	1U	1U	1U	NA
Carbon Tetrachloride	5		1U	1U	1U	1U	0.7J	1U	1U	5U
Chlorobenzene	5		1U	1U	1U	1U	1U	1U	1U	5U
Chloroethane	5		1U	1U	1U	1U	1U	1U	1U	5U
Chloroform	7		1U	1U	1U	1U	6	1U	1U	5U
Chloromethane	NA		1U	1U	1U	1U	1U	1U	1U	5U
cis-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	5U
cis-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	5U
Dibromochloromethane	50		1U	1U	1U	1U	1U	2J	2J	5U
Methylene Chloride	5		1U	1U	1U	1U	0.6J	1U	1U	5U
MTBE	10		NA	NA	1U	NA	NA	NA	NA	NA
Tetrachloroethene	5		1U	1U	1U	1U	8	1U	1U	5.6
trans-1,2-Dichloroethene	5		1U	1U	1U	1U	1U	1U	1U	5U
trans-1,3-Dichloropropene	5		1U	1U	1U	1U	1U	1U	1U	5U
Trichloroethene	5		1U	1U	1U	1U	1U	1U	1U	5U
Trichlorofluoromethane	5		5U	5U	1U	5U	1U	5U	5U	5U
Vinyl Chloride	2		1U	1U	1U	1U	1U	1U	1U	5U
Benzene	1		1U	NA	1U	1U	1U	1U	1U	NA
Ethylbenzene	5		1U	NA	1U	1U	1U	1U	1U	NA
o-Xylene	5		NA	NA	1U	NA	1U	NA	NA	NA
m+p-Xylene	5		NA	NA	1U	NA	1U	NA	NA	NA
Toluene	5		1U	NA	1U	1U	1U	1U	1U	NA
Xylenes (total)	5		NA	NA	NA	NA	NA	NA	NA	NA

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water Quality Standards and Guidance Values (AWQSGVs)

µg/L -Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

ft bls - Feet below land surface

B - Compound detected in laboratory blank

NA - Not analyzed

- - No NYSDEC AWQSGV available

Note:

Monitoring Well without a D, I or S designation indicates a shallow well

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations	
Geoprobe Groundwater Samples	GW-1 through GW-16
Monitoring Well Groundwater Samples	MW-1, MW-2, MW-21 through MW-35
Temporary Monitoring Well Groundwater Samples	SB-7, SB-12, SB-23 and SB-24
Hydropunch™ Groundwater Samples	SB-31 through SB-49 and SB-53 through SB-74

D - Deep

I - Intermediate

S - Shallow

Table 4. Summary of Target Analyte List Metals and Cyanide Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	NYSDEC RSCOs (mg/kg)	Eastern USA Background Concentrations (mg/kg)	**Designation:**	TP-9A	TP-9B	TP-9C	TP-9D	TP-10A	TP-10B
			Sample Date:	9/30/99	9/30/99	9/30/99	9/30/99	9/30/99	9/30/99
			Sample Depth (ft bls):	6-8	6-8	6-8	4-6	6-8	6-8
Aluminum	--	33,000		2,100	2,400	2,300	1,600	1,400	1,900
Antimony	--	--		1.5U	1.4U	1.6U	1.4U	1.4U	1.4U
Arsenic	7.5	12		2.1U	2U	2.4U	2U	2U	2U
Barium	300	600		29	32	40	18	24	28
Beryllium	0.16	1.75		0.2U	0.19U	0.23U	0.19U	0.19U	0.19U
Cadmium	1	1		0.34U	0.32U	0.37U	0.32U	0.32U	0.32U
Calcium	--	35,000		1,100	1,200	2,700	540U	840	970
Chromium	10	40		7.7	10	17	6.8	6.4	8.3
Cobalt	30	60		4	5.1	4.6	2.6	3.1	4.6
Copper	25	50		6.2	5.6	12	3.7	7.4	6.2
Cyanide, Total	--	--		NA	NA	NA	NA	NA	NA
Hexavalent Chromium	--	--		NA	NA	NA	NA	NA	NA
Iron	2,000	550,000		**6,500**	**6,400**	**7,800**	**4,400**	**5,300**	**7,000**
Lead	500	500		6.3	6.1	31	5.4	5.4	4.5
Magnesium	--	5,000		1,100	1,300	1,100	880	780	1,000
Manganese	--	5,000		180	180	200	100	190	230
Mercury	0.1	0.2		0.036U	0.035U	0.04U	0.035U	0.035U	0.035U
Nickel	13	25		7.7	10	11	5.2	6.5	8
Potassium	--	43,000		900	1,100	770	650	550	750
Selenium	2	3.9		3U	2.9U	3.4U	2.9U	2.9U	2.9U
Silver	--	--		1.3U	1.3U	1.5U	1.3U	1.3U	1.3U
Sodium	--	8,000		210U	200U	240U	200U	200U	200U
Thallium	--	--		1.1U	1.1U	1.2U	1.1U	1.1U	1.1U
Vanadium	150	300		12	12	100	6.9	6.7	8.6
Zinc	20	50		**21**	**23**	**54**	19U	**21**	20

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

U - Indicates that the compound was analyzed for but not detected

J - Validator Qualifier - Estimated Value

B - Indicates analyte result between instrument detection limit and the contract required detection limit

N - Spiked sample recovery not within control limits

NYSDEC - New York State Department of Environmental Conservation

RSCOs - Recommended Soil Cleanup Objectives

(1) - Sample was collected at 0-2 inches bls

-- No NYSDEC RSCO or Eastern USA Background Concentration available

NA - Not Analyzed

* Duplicate analysis not within control limits

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 4. Summary of Target Analyte List Metals and Cyanide Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	NYSDEC RSCOs (mg/kg)	Eastern USA Background Concentrations (mg/kg)	Designation:	TP-10C	TP-10D	SB-2	SB-3	SB-7	SB-11
			Sample Date:	9/30/99	9/30/99	9/30/99	9/30/99	10/25/00	10/20/00
			Sample Depth (ft bls):	2-4	6-8	8-10	6-8	15-17	8-10
Aluminum	--	33,000		2,200	970	2500	2700	3180	3030
Antimony	--	--		1.4U	1.4U	1.4U	1.5U	0.99U	1U
Arsenic	7.5	12		2U	2U	2.1U	2.2U	1.7B	1.7B
Barium	300	600		34	14	22	39	30.6B	25.9B
Beryllium	0.16	1.75		0.19U	0.19U	0.2U	0.2U	**0.30B**	**0.25B**
Cadmium	1	1		0.32U	0.32U	0.33U	0.34U	0.099U	0.1U
Calcium	--	35,000		620	970	570	930	896B	751U
Chromium	10	40		9.6	10	**24**	**13**	**11.5**	**18.9**
Cobalt	30	60		3.5	2.2	2.8	5.1	4.1B	2.9B
Copper	25	50		20	5.7	5.4	8.4	7.4	8.6
Cyanide, Total	--	--		NA	NA	NA	NA	0.6U	0.54U
Hexavalent Chromium	--	--		NA	NA	NA	NA	NA	NA
Iron	2,000	550,000		**6,400**	**4,800**	**7,400**	**8,000**	**9,940**	**10,300**
Lead	500	500		17	4.7	3	3.4	2.9	3.0
Magnesium	--	5,000		710	630	1000	1200	1360	1470
Manganese	--	5,000		210	120	110	230	234	123
Mercury	0.1	0.2		0.035U	0.034U	0.036U	0.037U	0.0042B	0.013
Nickel	13	25		6.6	5.2	5.8	7.5	8.4	9.3
Potassium	--	43,000		520	300	680	940	1080	1200
Selenium	2	3.9		2.9U	2.8U	3U	3.1U	1.3NJ	1.7NJ
Silver	--	--		1.3U	1.3U	1.3U	1.4U	0.2U	0.21U
Sodium	--	8,000		200U	200U	210U	220U	41.6B	42.4B
Thallium	--	--		1.1U	1.1U	1.1U	1.1U	1.6B	1.4U
Vanadium	150	300		7.1	4.8	8.3	9.6	12.1	11.9
Zinc	20	50		55	19U	20U	20U	**21.8**	**20.1**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

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Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 4. Summary of Target Analyte List Metals and Cyanide Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	NYSDEC RSCOs (mg/kg)	Eastern USA Background Concentrations (mg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	SB-12 10/27/00 6-8	SB-13 10/24/00 6-8	SB-14 10/19/00 6-8	SB-15 10/19/00 0-2	SB-16 10/19/00 6-8	SB-17 10/19/00 0-2
Aluminum	--	33,000		3460	1440	2060	3800	7320	3720
Antimony	--	--		1.1UN	1U	1U	1U	1U	0.87U
Arsenic	7.5	12		2.1B	1.1B	1U	5.2	2.2	2.8
Barium	300	600		33B	23.4B	16.9B	51.3	28.6B	42.7
Beryllium	0.16	1.75		**0.31B**	**0.25B**	0.14B	**0.29B**	**0.43B**	**0.25B**
Cadmium	1	1		0.11U	0.1U	0.1U	0.1B	0.1U	0.087U
Calcium	--	35,000		1400U*	668B	205U	18800	651U	9160
Chromium	10	40		**12.4**	5.4	5.9	**23.7**	**12.1**	**20.0**
Cobalt	30	60		3.7B	16.3	3.4B	3.4B	4.4B	3.3B
Copper	25	50		9.2	9.5	3.8B	21.9	8.5	12.4
Cyanide, Total	--	--		0.54UJ	0.53U	0.52U	0.54U	0.55U	0.5U
Hexavalent Chromium	--	--		NA	NA	NA	NA	NA	NA
Iron	2,000	550,000		**11,000**	**14800**	**5200**	**9500**	**11400**	**8160**
Lead	500	500		3.6	1.8	1.5	110	7.8	46.5
Magnesium	--	5,000		1760	835B	856B	1540	1530	1340
Manganese	--	5,000		171	412	108	141	81.8	146
Mercury	0.1	0.2		0.0029UN	0.0038B	0.0069	0.050	0.037	0.041
Nickel	13	25		10.8	18.5	4.9B	**14.7**	9.7	**13.9**
Potassium	--	43,000		1560	433B	490B	637B	674B	523B
Selenium	2	3.9		1.1UN	2NJ	1.2NJ	1.8NJ	2.4NJ	1.3NJ
Silver	--	--		0.22U	0.21U	0.21U	0.2U	0.2U	0.17U
Sodium	--	8,000		47.5B	17.6B	22.2B	58.8B	36.1B	50.6B
Thallium	--	--		1.5U	1.5U	1.5U	1.4U	1.4U	1.6B
Vanadium	150	300		13.6	5.6B	6.1B	11.1	15.6	9.8
Zinc	20	50		19	**27.9**	9.5	**102**	**20.5**	**64.2**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

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(1) - Sample was collected at 0-2 inches bls

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Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 4. Summary of Target Analyte List Metals and Cyanide Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	NYSDEC RSCOs (mg/kg)	Eastern USA Background Concentrations (mg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	SB-18 10/20/00 8-10	SB-19 10/19/00 0-2	SB-20 10/24/00 4-6	SB-21 10/24/00 8-10	SB-22 10/19/00 8-10	SB-23 10/27/00 0-2
Aluminum	--	33,000		2730	5080	7270	2140	2210	2950
Antimony	--	--		1U	1U	1.2U	0.98U	1U	1.2BN
Arsenic	7.5	12		1.2B	4.9	2.9	0.98U	1.4B	**53.3**
Barium	300	600		29.1B	47.1	43.7B	27.2B	27.4B	27.9B
Beryllium	0.16	1.75		**0.24B**	**0.34B**	**0.43B**	**0.19B**	**0.18B**	**0.23B**
Cadmium	1	1		0.1U	0.1U	0.13B	0.098U	0.1U	0.096U
Calcium	--	35,000		3830U	8190U	2170	3160	770U	743B*
Chromium	10	40		**11.4**	**12.2**	**18.2**	9.2	10	**29.1**
Cobalt	30	60		3.5B	3.9B	5.9B	2.6B	3.9B	15.5
Copper	25	50		6.8	10.9	14.9	6.5	6.0	**32.2**
Cyanide, Total	--	--		0.52U	0.52U	0.58U	0.51U	0.57U	0.53UJ
Hexavalent Chromium	--	--		NA	NA	NA	NA	NA	NA
Iron	2,000	550,000		**10000**	**9280**	**14800**	**6450**	**8460**	**93800**
Lead	500	500		3.8	29	9.5	7.5	1.9	23.5
Magnesium	--	5,000		1410	1620	2170	875B	1240	983
Manganese	--	5,000		184	177	296	158	189	732
Mercury	0.1	0.2		0.0050B	0.052U	0.014	0.010	0.032U	0.022NJ
Nickel	13	25		11.5	10.3	**17.0**	6.5B	8.7	**47.2**
Potassium	--	43,000		1040	459B	1640	605B	1080	599B
Selenium	2	3.9		1.2UN	1.7NJ	1.8NJ	1.2UN	1.1NJ	**4.8N**
Silver	--	--		0.21U	0.21U	0.23U	0.2U	0.2U	0.31B
Sodium	--	8,000		47B	48.3B	63.6B	171B	36.2B	26.7B
Thallium	--	--		1.4U	1.8B	1.6U	1.5B	1.4U	4.0
Vanadium	150	300		11.0	17.9	20.0	8.5B	9.6B	11.3
Zinc	20	50		18.8	**33.9**	**113**	**20.2**	14.4	**420**

mg/kg - Milligrams per kilogram

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NYSDEC - New York State Department of Environmental Conservation

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NA - Not Analyzed

* Duplicate analysis not within control limits

Note:

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Table 4. Summary of Target Analyte List Metals and Cyanide Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	NYSDEC RSCOs (mg/kg)	Eastern USA Background Concentrations (mg/kg)	Designation:	SB-24	SB-25	SB-25	SB-26	SB-26	SB-27
			Sample Date:	10/27/00	10/26/00	10/26/00	10/26/00	10/26/00	10/26/00
			Sample Depth (ft bls):	8-10	0-2	4-6	0-2	4-6	0-2
Aluminum	--	33,000		942	1890	2190	2690	2820	5720
Antimony	--	--		0.83UN	0.86U	1.1U	2.2B	0.69U	1.2UN
Arsenic	7.5	12		0.97B	1.5B	1.4B	3.3	2.1	7.4
Barium	300	600		9.7B	19.2B	18.1B	20.1B	31.1	61.8
Beryllium	0.16	1.75		0.096B	0.16B	**0.18B**	**0.2B**	**0.18B**	**0.44B**
Cadmium	1	1		0.083U	0.086U	0.11U	0.2B	0.069U	0.28B
Calcium	--	35,000		318BU	654B	944B	21000	1570	4760*
Chromium	10	40		4.4	**11.7**	9.9	**14.8**	**35.8**	**19.5**
Cobalt	30	60		1.5B	2.8B	4B	3.2B	2.7B	4.9B
Copper	25	50		2.5B	7	5.7	10.5	10.6	22.5
Cyanide, Total	--	--		0.5UJ	0.5U	0.63U	0.53U	0.52U	0.61UJ
Hexavalent Chromium	--	--		NA	NA	NA	NA	NA	NA
Iron	2,000	550,000		**4160**	**8460**	**7960**	**10100**	**7000**	**10700**
Lead	500	500		1.1	6.6	3.5	19	37.9	42.9
Magnesium	--	5,000		421B	888	1120	**13200**	1480	1890
Manganese	--	5,000		97.9	124	174	147	110	197
Mercury	0.1	0.2		0.0029UN	0.0037U	0.0026B	0.022	0.033	0.038NJ
Nickel	13	25		3.6B	7.5	9.4	11	**20.7**	**14.5**
Potassium	--	43,000		300B	552B	634B	728B	461B	1160B
Selenium	2	3.9		0.83UN	1.2NJ	1.1UN	1.1NJ	1.1NJ	1.5NJ
Silver	--	--		0.16U	0.17U	0.22U	0.53B	0.14U	0.24U
Sodium	--	8,000		21B	23.2B	31.2B	43B	21.7B	69.3B
Thallium	--	--		1.2U	1.2U	2B	3.4	0.97U	1.7U
Vanadium	150	300		3.6B	7.7B	8.6B	9.6	8.6	16.1
Zinc	20	50		6.6	**50**	**22**	**93.8**	**97.4**	**142**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

U - Indicates that the compound was analyzed for but not detected

J - Validator Qualifier - Estimated Value

B - Indicates analyte result between instrument detection limit and the contract required detection limit

N - Spiked sample recovery not within control limits

NYSDEC - New York State Department of Environmental Conservation

RSCOs - Recommended Soil Cleanup Objectives

(1) - Sample was collected at 0-2 inches bls

-- No NYSDEC RSCO or Eastern USA Background Concentration available

NA - Not Analyzed

* Duplicate analysis not within control limits

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 4. Summary of Target Analyte List Metals and Cyanide Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	NYSDEC RSCOs (mg/kg)	Eastern USA Background Concentrations (mg/kg)	Designation:	SB-27	SB-28	SB-28	SB-29	SB-29	SB-30
			Sample Date:	10/26/00	10/31/00	10/31/00	10/31/00	10/31/00	10/31/00
			Sample Depth (ft bls):	4-6	0-2	4-6	0-2	4-6	0-2
Aluminum	--	33,000		5360	3270	2330	3360	3020	5060
Antimony	--	--		1.1UN	0.83UN	1UN	0.96UN	1UN	0.98UN
Arsenic	7.5	12		2B	2.8	1.1B	2.6	1.4B	3.6
Barium	300	600		28.1B	36.4	16.3B	37.3B	37.2B	44.8
Beryllium	0.16	1.75		**0.29B**	**0.23B**	**0.16B**	**0.24B**	**0.21B**	**0.33B**
Cadmium	1	1		0.11U	0.083U	0.1U	0.096U	0.1U	0.23B
Calcium	--	35,000		646BU	6600*	1860*	4500*	1440*	10800*
Chromium	10	40		**10.4**	8.6	8.5	**13.2**	**11.1**	**15.8**
Cobalt	30	60		3.7B	2.9B	2.4B	3.2B	3.2B	4.3B
Copper	25	50		9.1	10.9	5.5	10.5	7.7	17.1
Cyanide, Total	--	--		0.61UJ	0.54UJ	0.52UJ	0.52UJ	0.54UJ	0.54UJ
Hexavalent Chromium	--	--		NA	NA	NA	NA	NA	NA
Iron	2,000	550,000		**9840**	**7460**	**6430**	**8240**	**8980**	**11200**
Lead	500	500		7.9	20J	4.3	24.4	4.5	25.7
Magnesium	--	5,000		1420	1090	840B	1260	1400	2050
Manganese	--	5,000		134	153	122	160	146	210
Mercury	0.1	0.2		0.011NJ	0.048NJ	0.011NJ	0.028NJ	0.0028UN	0.037NJ
Nickel	13	25		8.8	8.5	6.4B	9.1	8.6	**13.8**
Potassium	--	43,000		811B	638B	489B	874B	1220	1120
Selenium	2	3.9		1.1UN	0.83UN	1UN	0.96UN	1UN	1NJ
Silver	--	--		0.22B	0.16U	0.21U	0.19U	0.21U	0.2U
Sodium	--	8,000		43B	52.2B	30.8B	45.8B	37.7B	57B
Thallium	--	--		1.6B	1.2U	1.4U	1.4U	1.5U	1.4U
Vanadium	150	300		12.7	9	6.6B	10.3	11	22.8
Zinc	20	50		**22.4**	**34.5**	14.1	**45.3**	**21.7**	**123**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

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(1) - Sample was collected at 0-2 inches bls

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* Duplicate analysis not within control limits

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 4. Summary of Target Analyte List Metals and Cyanide Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	NYSDEC RSCOs (mg/kg)	Eastern USA Background Concentrations (mg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	SB-30 10/31/00 4-6	SB-71 4/13/01 10-12	SB-72 4/13/01 10-12	SB-73 4/24/01 10-12	SURFACE #1 12/21/00 (1)	SURFACE #2 12/21/00 (1)
Aluminum	--	33,000		3000	2670	7340	5410	3830	4950
Antimony	--	--		0.88UN	2.2U	1.9U	2.4U	0.96U*J	0.92U*J
Arsenic	7.5	12		2.4	2.2UJ	2.3J	2.4U	2.3*J	2.8*J
Barium	300	600		40.4	25.9B	58.8	54.3	30.2B	57.4
Beryllium	0.16	1.75		**0.22B**	1.1U	0.95U	1.2U	**0.21B**	**0.22B**
Cadmium	1	1		0.088U	1.1UJ	0.95UJ	1.2U	0.2BNJ	**3NJ**
Calcium	--	35,000		4200*	608B	2020	1530	1640	**36200**
Chromium	10	40		**11.2**	9.0	**24.1**	**21.6**	**17.6*J**	**15.6*J**
Cobalt	30	60		3.7B	2.8B	6.5B	4.8	3.5B	2.4B
Copper	25	50		14.3	4.6B	15.6	12.6	**25.4*J**	11.8*J
Cyanide, Total	--	--		0.52UJ	NA	NA	0.660U	NA	NA
Hexavalent Chromium	--	--		NA	0.241U	0.284U	NA	NA	NA
Iron	2,000	550,000		**9220**	**7490**	**16600**	**13200***	**8670***	**9020***
Lead	500	500		18.1	2.2	8.2	4.5*	18*J	32.6*J
Magnesium	--	5,000		2550	1180J	3140J	2980	1800	2410
Manganese	--	5,000		176	296J	354J	119*	180*J	149*J
Mercury	0.1	0.2		0.012NJ	0.0056U	0.0088	0.0044U	0.022J	0.02J
Nickel	13	25		9.4	6.5B	**22.9**	**17**	13*NJ	9.1*NJ
Potassium	--	43,000		1090	1000B	3300	2940	919B	916B
Selenium	2	3.9		0.88UN	1.1U	0.95U	1.2U	0.96U	0.92U
Silver	--	--		0.18U	1.1U	0.95U	1.2U	0.38U	0.37U
Sodium	--	8,000		41.5B	108U	94.8U	121U	46.2B	113B
Thallium	--	--		1.2U	2.2U	1.9U	3.5B	1.9U	1.8U
Vanadium	150	300		11.7	9.4B	24.4	19.8	11.6	10.7
Zinc	20	50		**130**	13.6J	**48J**	**35***	**50.8*J**	**54.6*J**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

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RSCOs - Recommended Soil Cleanup Objectives

(1) - Sample was collected at 0-2 inches bls

-- No NYSDEC RSCO or Eastern USA Background Concentration available

NA - Not Analyzed

* Duplicate analysis not within control limits

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 4. Summary of Target Analyte List Metals and Cyanide Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	NYSDEC RSCOs (mg/kg)	Eastern USA Background Concentrations (mg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	SURFACE #3 12/21/00 (1)	SURFACE #4 12/21/00 (1)	SURFACE #5 12/21/00 (1)	SURFACE #6 12/21/00 (1)	SURFACE #7 12/22/00 (1)
Aluminum	--	33,000		211	2020	5500	1900	5940
Antimony	--	--		0.88U*J	1U*J	1U*J	1U*J	1U*J
Arsenic	7.5	12		0.88U*J	**22.6*J**	2.7*J	1.3B*J	3*J
Barium	300	600		1.7B	51.8	55.3	17.8B	42.4
Beryllium	0.16	1.75		0.18U	**0.32B**	**0.23B**	0.21U	**0.35B**
Cadmium	1	1		0.18UNJ	0.72BNJ	0.52BNJ	0.21UNJ	0.2UNJ
Calcium	--	35,000		56.5B	1310	54400	591B	2540
Chromium	10	40		1.1B*J	**20.9*J**	**18.5*J**	**27.5*J**	9.6*J
Cobalt	30	60		0.35U	4.2B	2.8B	2.3B	3.3B
Copper	25	50		0.52B*J	**48.6*J**	12.9*J	6.5*J	11.7*J
Cyanide, Total	--	--		NA	NA	NA	NA	NA
Hexavalent Chromium	--	--		NA	NA	NA	NA	NA
Iron	2,000	550,000		653*	**21000***	**8420***	**6400***	**9170***
Lead	500	500		0.52U*J	68.3*J	37.9*J	4.2*J	56.4*J
Magnesium	--	5,000		73.1B	454B	3000	839BJ	1510
Manganese	--	5,000		4.4*J	141*J	160*J	102*J	211*J
Mercury	0.1	0.2		0.0021UJ	0.1J	0.027J	0.0039UJ	0.1J
Nickel	13	25		0.82B*NJ	**19.4*NJ**	8.9*NJ	5.6B*NJ	8.6*NJ
Potassium	--	43,000		50.5B	171B	999B	687B	533B
Selenium	2	3.9		0.88U	1	1U	1U	1U
Silver	--	--		0.35U	0.42U	0.4U	0.42U	0.4U
Sodium	--	8,000		11.4B	46B	146B	29.2B	35.6B
Thallium	--	--		1.8U	2.1U	2U	2.1U	2U
Vanadium	150	300		1.4B	16.2	12.8	7.2B	11.9
Zinc	20	50		1.8B*J	**488*J**	**69.3*J**	**20.2*J**	**46.9*J**

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(1) - Sample was collected at 0-2 inches bls

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Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 4. Summary of Target Analyte List Metals and Cyanide Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	NYSDEC RSCOs (mg/kg)	Eastern USA Background Concentrations (mg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	SURFACE #8 12/21/00 (1)	SURFACE #9 12/21/00 (1)	SURFACE #10 12/21/00 (1)	SURFACE #11 12/21/00 (1)	SURFACE #12 12/21/00 (1)
Aluminum	--	33,000		5030	272	4780	2820	2240
Antimony	--	--		0.86U*J	0.99U*J	1.4B*J	0.96U*J	0.92U*J
Arsenic	7.5	12		2.4*J	0.99U*J	5.1*J	4.6*J	3.1*J
Barium	300	600		35.3	2.9B	47.6	40.4	38.7
Beryllium	0.16	1.75		**0.26B**	0.2U	**0.24B**	0.19U	0.18U
Cadmium	1	1		0.17UNJ	0.2UNJ	**1.1NJ**	0.77BNJ	0.42BNJ
Calcium	--	35,000		5160	64.9B	7210	776B	12500
Chromium	10	40		**10.4*J**	**1.5B*J**	**109*J**	**79.3*J**	**18.7*J**
Cobalt	30	60		3.7B	0.44B	5.4B	3.6B	2.1B
Copper	25	50		10.9*J	1B*J	**343*J**	15*J	21.2*J
Cyanide, Total	--	--		NA	NA	NA	NA	NA
Hexavalent Chromium	--	--		NA	NA	NA	NA	NA
Iron	2,000	550,000		**8940***	**872***	**29600***	**8190***	**7320***
Lead	500	500		21.1*J	0.59U*J	75.6*J	44.4*J	37.3*J
Magnesium	--	5,000		1620	106B	4970	1100	**6600**
Manganese	--	5,000		170*J	23.2*J	257*J	169*J	**105*J**
Mercury	0.1	0.2		0.038J	0.0034UJ	**0.14J**	0.038J	0.013J
Nickel	13	25		10*NJ	1.1B*NJ	**72.8*NJ**	11.7*NJ	8.8*NJ
Potassium	--	43,000		774B	76.9B	1210	821B	608B
Selenium	2	3.9		0.86U	0.99U	1.1U	0.96U	0.92U
Silver	--	--		0.34U	0.4U	0.52B	0.38U	0.37U
Sodium	--	8,000		42.7B	12.2B	59.9B	44B	108B
Thallium	--	--		1.7U	2U	2.2U	1.9U	1.8U
Vanadium	150	300		10.8	1.2B	27.5	38.8	16.8
Zinc	20	50		**38.8*J**	**3B*J**	**223*J**	**393*J**	**92.9*J**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

U - Indicates that the compound was analyzed for but not detected

J - Validator Qualifier - Estimated Value

B - Indicates analyte result between instrument detection limit and the contract required detection limit

N - Spiked sample recovery not within control limits

NYSDEC - New York State Department of Environmental Conservation

RSCOs - Recommended Soil Cleanup Objectives

(1) - Sample was collected at 0-2 inches bls

-- No NYSDEC RSCO or Eastern USA Background Concentration available

NA - Not Analyzed

* Duplicate analysis not within control limits

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 5. Summary of Volatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	SB-1 10/1/99 8-10	SB-2 10/1/99 8-10	SB-3 10/1/99 8-10	SB-11 10/20/00 8-10	SB-12 10/27/00 6-8	SB-13 10/24/00 6-8	SB-14 10/19/00 6-8	SB-15 10/19/00 0-2
Chloromethane	--		5.7U	5.5U	5.7U	11U	11U	11U	10U	11U
Bromomethane	--		5.7U	5.5U	5.7U	11U	6U	11U	10U	10U
Vinyl Chloride	200		5.7U	5.5U	5.7U	11U	11U	11U	10U	11U
Chloroethane	1,900		5.7U	5.5U	5.7U	11U	11U	11U	10U	11U
Methylene Chloride	100		5.7U	5.5U	5.7U	11U	11U	11U	10U	11U
Acetone	200		23U	22U	23U	11U	11U	11U	10U	11U
Carbon Disulfide	2,700		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
Vinyl Acetate	--		11U	11U	11U	11U	6U	11U	10U	11U
1,1-Dichloroethene	400		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
1,1-Dichloroethane	200		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
cis-1,2-Dichloroethene	--		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
trans-1,2-Dichloroethene	300		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
Chloroform	300		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
1,2-Dichloroethane	100		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
2-Butanone	300		28U	27U	28U	11U	11U	11U	10U	11U
1,1,1-Trichloroethane	800		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
Carbon Tetrachloride	600		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
Bromodichloromethane	--		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
1,2-Dichloropropane	--		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
cis-1,3-Dichloropropene	--		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
Trichloroethene	700		6.3	5.5U	5.7U	5U	6U	5U	5U	4J
Dibromochloromethane	--		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
1,1,2-Trichloroethane	--		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
Benzene	60		1.1U	1.1U	1.1U	5U	6U	5U	5U	5U
trans-1,3-Dichloropropene	--		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
Bromoform	--		5.7U	5.5U	5.7U	11U	11U	5U	5U	5U
4-Methyl-2-Pentanone	1,000		23U	22U	23U	11U	11U	11U	10U	11U
2-Hexanone	--		23U	22U	23U	11U	11U	11U	10U	11U
Tetrachloroethene	1,400		5.7U	5.5U	5.7U	5U	6U	5U	1J	2J
Toluene	1,500		1.1U	1.1U	1.1U	0.6J	6U	0.4J	0.6J	5U
1,1,2,2-Tetrachloroethane	600		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
Chlorobenzene	1,700		5.7U	5.5U	5.7U	5U	6U	5U	5U	5U
Ethylbenzene	5,500		1.1U	1.1U	1.1U	5U	6U	5U	5U	5U
Styrene	--		1.1U	1.1U	1.1U	5U	6U	5U	5U	5U
Xylenes (total)	1,200		NA	NA	NA	5U	6U	5U	5U	5U

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
(1) - Sample was collected at 0-2 inches bls
ft bls - Feet below land surface
NA - Not analyzed
Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 5. Summary of Volatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	SB-16 10/19/00 6-8	SB-17 10/19/00 0-2	SB-18 10/20/00 8-10	SB-19 10/19/00 0-2	SB-20 10/24/00 4-6	SB-21 10/24/00 8-10	SB-22 10/19/00 8-10	SB-23 10/27/00 0-2
Chloromethane	--		11U	10U	10U	10U	12U	10U	11U	11U
Bromomethane	--		11U	10U	10U	10U	12U	10U	11U	11U
Vinyl Chloride	200		11U	10U	10U	10U	12U	10U	11U	11U
Chloroethane	1,900		11U	10U	10U	10U	12U	10U	11U	11U
Methylene Chloride	100		11U	10U	10U	10U	12U	10U	11U	11U
Acetone	200		11U	10U	10U	10U	12U	10U	11U	11U
Carbon Disulfide	2,700		6U	5U	5U	5U	6U	5U	5U	5U
Vinyl Acetate	--		11U	10U	10R	10U	12U	10U	11U	11U
1,1-Dichloroethene	400		6U	5U	5U	5U	6U	5U	5U	5U
1,1-Dichloroethane	200		6U	5U	5U	5U	6U	5U	5U	5U
cis-1,2-Dichloroethene	--		6U	5U	5U	5U	6U	5U	5U	5U
trans-1,2-Dichloroethene	300		6U	5U	5U	5U	6U	5U	5U	5U
Chloroform	300		6U	5U	5U	5U	6U	5U	5U	5U
1,2-Dichloroethane	100		6U	6U	5U	5U	6U	5U	5U	5U
2-Butanone	300		11U	10U	10U	10U	12U	10U	11U	5U
1,1,1-Trichloroethane	800		6U	5U	5U	4J	6U	5U	5U	5U
Carbon Tetrachloride	600		6U	5U	5U	5U	6U	5U	5U	5U
Bromodichloromethane	--		6U	5U	5U	5U	6U	5U	5U	5U
1,2-Dichloropropane	--		6U	5U	5U	5U	6U	5U	5U	5U
cis-1,3-Dichloropropene	--		6U	5U	5U	5U	6U	5U	5U	5U
Trichloroethene	700		6U	5U	0.3J	5U	6U	5U	5U	5U
Dibromochloromethane	--		6U	5U	5U	5U	6U	5U	5U	5U
1,1,2-Trichloroethane	--		6U	5U	5U	5U	6U	5U	5U	5U
Benzene	60		6U	5U	5U	0.4J	6U	5U	5U	5U
trans-1,3-Dichloropropene	--		6U	5U	5U	5U	6U	5U	5U	5U
Bromoform	--		6U	5U	5U	5U	6U	5U	5U	5U
4-Methyl-2-Pentanone	1,000		11U	10U	10U	10U	12U	10U	11U	11U
2-Hexanone	--		11U	10U	10U	10U	12U	10U	11U	11U
Tetrachloroethene	1,400		1J	5U	5U	10	6U	5U	5U	5U
Toluene	1,500		0.6J	5U	0.3J	5U	0.4J	0.4J	0.4J	5U
1,1,2,2-Tetrachloroethane	600		6U	5U	5R	5U	6U	5U	5U	5U
Chlorobenzene	1,700		6U	5U	5U	5U	6U	5U	5U	5U
Ethylbenzene	5,500		6U	5U	5U	5U	6U	5U	5U	5U
Styrene	--		6U	5U	5U	5U	6U	5U	5U	5U
Xylenes (total)	1,200		6U	5U	5U	5U	6U	5U	0.3J	5U

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
(1) - Sample was collected at 0-2 inches bls
ft bls - Feet below land surface
NA - Not analyzed
Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 5. Summary of Volatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	SB-24 10/27/00 8-10	SB-25 10/26/00 0-2	SB-25 10/26/00 4-6	SB-26 10/26/00 0-2	SB-26 10/26/00 4-6	SB-27 10/26/00 0-2	SB-27 10/26/00 4-6	SB-28 10/31/00 0-2	SB-28 10/31/00 4-6
Chloromethane	--		10U	10U	13U	11U	10U	13U	12U	11U	10U
Bromomethane	--		10U	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	200		10U	10U	13U	11U	10U	13U	12U	11U	10U
Chloroethane	1,900		10U	10U	13U	11U	10U	13U	12U	11U	10U
Methylene Chloride	100		10U	10U	13U	11U	10U	13U	12U	11U	10U
Acetone	200		10U	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	2,700		5U	5U	6U	5U	5U	6U	6U	5U	5U
Vinyl Acetate	--		10U	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	400		5U	5U	6U	5U	5U	6U	6U	5U	5U
1,1-Dichloroethane	200		5U	5U	6U	5U	5U	6U	6U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	6U	5U	5U	6U	6U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	6U	5U	5U	6U	6U	5U	5U
Chloroform	300		5U	5U	6U	5U	5U	6U	6U	5U	5U
1,2-Dichloroethane	100		5U	5U	6U	5U	5U	6U	6U	5U	5U
2-Butanone	300		5U	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	800		5U	5U	6U	5U	5U	6U	6U	5U	5U
Carbon Tetrachloride	600		5U	5U	6U	5U	5U	6U	6U	5U	5U
Bromodichloromethane	--		5U	5U	6U	5U	5U	6U	6U	5U	5U
1,2-Dichloropropane	--		5U	5U	6U	5U	5U	6U	6U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	6U	5U	5U	6U	6U	5U	5U
Trichloroethene	700		5U	5U	6U	5U	5U	4J	6U	3J	3J
Dibromochloromethane	--		5U	5U	6U	5U	5U	6U	6U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	6U	5U	5U	6U	6U	5U	5U
Benzene	60		5U	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	--		5U	5U	6U	5U	5U	6U	6U	5U	5U
Bromoform	--		5U	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone	1,000		10U	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--		10U	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1,400		5U	2J	6U	5U	5U	5J	6U	2J	5U
Toluene	1,500		5U	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	600		5U	5U	6U	5U	5U	6U	6U	5U	5U
Chlorobenzene	1,700		5U	5U	6U	5U	5U	6U	6U	5U	5U
Ethylbenzene	5,500		5U	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--		5U	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	1,200		5U	NA	NA	NA	NA	NA	NA	NA	NA

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
(1) - Sample was collected at 0-2 inches bls
ft bls - Feet below land surface
NA - Not analyzed
Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 5. Summary of Volatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	SB-29 10/31/00 0-2	SB-29 10/31/00 4-6	SB-30 10/31/00 0-2	SB-30 10/31/00 4-6	SB-35 3/11/01 2-4	SB-36 3/8/01 10-12	SB-37 3/8/01 10-12	SB-38 3/8/01 8-10	SB-67 4/4/01 0-2
Chloromethane	--		10U	10U	11U	11U	11UJ	11UJ	11UJ	260U	10U
Bromomethane	--		NA	NA	NA	NA	11U	11U	11U	260U	10U
Vinyl Chloride	200		10U	10U	11U	10U	11U	11U	11U	260U	10U
Chloroethane	1,900		10U	10U	11U	11U	11U	11U	11U	260U	10U
Methylene Chloride	100		10U	10U	11U	11U	11U	11U	11U	260U	10U
Acetone	200		NA	NA	NA	NA	NA	NA	NA	NA	10U
Carbon Disulfide	2,700		5U	5U	5U	5U	6U	6U	6U	260U	5UJ
Vinyl Acetate	--		NA	NA	NA	NA	NA	NA	6U	260U	10U
1,1-Dichloroethene	400		5U	5U	5U	5U	5U	6U	6U	260U	5U
1,1-Dichloroethane	200		5U	5U	5U	5U	5U	6U	6U	260U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U	5U	5U	6U	6U	260U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U	5U	5U	6U	6U	260U	5U
Chloroform	300		5U	5U	5U	5U	0.3J	6U	6U	260U	5U
1,2-Dichloroethane	100		5U	5U	5U	5U	5U	6U	6U	260U	5U
2-Butanone	300		NA	NA	NA	NA	NA	NA	NA	NA	5U
1,1,1-Trichloroethane	800		5U	5U	5U	5U	5U	6U	6U	260U	5U
Carbon Tetrachloride	600		5U	5U	5U	5U	5U	6UJ	6UJ	260U	5U
Bromodichloromethane	--		5U	5U	5U	5U	5U	6U	6U	260U	5U
1,2-Dichloropropane	--		5U	5U	5U	5U	5U	6U	6U	260U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U	5U	5U	6U	6U	260U	5U
Trichloroethene	700		5U	5U	5U	5U	5U	6U	6U	260U	3J
Dibromochloromethane	--		5U	5U	5U	5U	5U	6U	6U	260U	5U
1,1,2-Trichloroethane	--		5U	5U	5U	5U	5U	6U	6U	260U	5U
Benzene	60		NA	NA	NA	NA	NA	NA	NA	NA	5U
trans-1,3-Dichloropropene	--		5U	5U	5U	5U	5U	6U	6U	260U	5U
Bromoform	--		NA	NA	NA	NA	NA	NA	NA	NA	5U
4-Methyl-2-Pentanone	1,000		NA	NA	NA	NA	NA	NA	NA	NA	10U
2-Hexanone	--		NA	NA	NA	NA	NA	NA	NA	NA	10U
Tetrachloroethene	1,400		5U	5U	2J	6	5U	6UJ	6UJ	260U	1J
Toluene	1,500		NA	NA	NA	NA	NA	NA	NA	NA	5U
1,1,2,2-Tetrachloroethane	600		5U	5U	5U	5U	5U	6U	6U	260U	5U
Chlorobenzene	1,700		5U	5U	5U	5U	5U	6U	6U	260U	5U
Ethylbenzene	5,500		NA	NA	NA	NA	NA	NA	NA	NA	5U
Styrene	--		NA	NA	NA	NA	NA	NA	NA	NA	5U
Xylenes (total)	1,200		NA	NA	NA	NA	NA	NA	NA	NA	5U

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
(1) - Sample was collected at 0-2 inches bls
ft bls - Feet below land surface
NA - Not analyzed
Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 5. Summary of Volatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	SB-69 4/4/01 2-4	SB-71 4/19/01 10-12	SB-72 4/19/01 10-12	SB-73 4/24/01 10-12	SURFACE #1 12/21/00 (1)	SURFACE #2 12/21/00 (1)	SURFACE #3 12/21/00 (1)	SURFACE #4 12/21/00 (1)
Chloromethane	--		10U	10U	10U	10U	5U	5U	5U	5UJ
Bromomethane	--		10U	10U	10U	10U	5U	5U	5U	5UJ
Vinyl Chloride	200		10U	10U	10U	10U	5U	5U	5U	5UJ
Chloroethane	1,900		10U	10U	10U	10U	5U	5U	5U	5UJ
Methylene Chloride	100		10U	10U	10U	10U	5U	5U	5U	5UJ
Acetone	200		10U	10U	10U	10U	5U	5U	5U	5UJ
Carbon Disulfide	2,700		5U	5U	5U	5U	5U	5U	5U	5UJ
Vinyl Acetate	--		5U	5U	5U	10R	10U	11U	11U	11UJ
1,1-Dichloroethene	400		5U	5U	5U	5U	10U	11U	11U	11UJ
1,1-Dichloroethane	200		5U	5U	5U	5U	10U	11U	11U	11UJ
cis-1,2-Dichloroethene	--		5U	5U	5U	5U	10U	11U	11U	11UJ
trans-1,2-Dichloroethene	300		5U	5U	5U	5U	5U	5U	5U	5UJ
Chloroform	300		5U	5U	5U	5U	5U	5U	5U	5UJ
1,2-Dichloroethane	100		5U	5U	5U	5U	5U	5U	5U	5UJ
2-Butanone	300		5U	5U	5U	10U	10U	11U	11U	11UJ
1,1,1-Trichloroethane	800		5U	5U	5U	5U	5U	5U	5U	5UJ
Carbon Tetrachloride	600		5U	5U	5U	5U	5U	5U	5U	5UJ
Bromodichloromethane	--		5U	5U	5U	5U	5U	5U	5U	5UJ
1,2-Dichloropropane	--		5U	5U	5U	5U	10U	11U	11U	11UJ
cis-1,3-Dichloropropene	--		5U	5U	5U	5U	5U	5U	5U	5UJ
Trichloroethene	700		5U	5U	5U	0.5J	10U	11U	11U	11UJ
Dibromochloromethane	--		5U	5U	5U	5U	5U	5U	5U	5UJ
1,1,2-Trichloroethane	--		5U	5U	5U	5U	5U	5U	5U	5UJ
Benzene	60		5U	5U	5U	5U	5U	5U	5U	5UJ
trans-1,3-Dichloropropene	--		5U	5U	5U	5U	5U	5U	5U	5UJ
Bromoform	--		5U	5U	5U	5U	4JB	4JB	7B	5BJ
4-Methyl-2-Pentanone	1,000		5U	10U	10U	5U	5U	5U	5U	5UJ
2-Hexanone	--		5U	10U	10U	10U	5U	5U	5U	15J
Tetrachloroethene	1,400		5U	2J	2J	0.6J	5U	5U	5U	5UJ
Toluene	1,500		0.5	5U	0.6J	0.7J	5U	5U	5U	5UJ
1,1,2,2-Tetrachloroethane	600		5U	5U	5U	5U	5U	5U	5U	5UJ
Chlorobenzene	1,700		5U	5U	5U	5U	5U	5U	5U	16J
Ethylbenzene	5,500		5U	5U	5U	5U	10U	11U	11U	11UJ
Styrene	--		5U	5U	5U	5U	10U	11U	11U	11UJ
Xylenes (total)	1,200		5U	5U	5U	5U	5U	5U	5U	5UJ

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
(1) - Sample was collected at 0-2 inches bls
ft bls - Feet below land surface
NA - Not analyzed
Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 5. Summary of Volatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	SURFACE #5 12/21/00 (1)	SURFACE #6 12/21/00 (1)	SURFACE #7 12/22/00 (1)	SURFACE #8 12/21/00 (1)	SURFACE #9 12/21/00 (1)	SURFACE #10 12/21/00 (1)	SURFACE #11 12/21/00 (1)	SURFACE #12 12/21/00 (1)
Chloromethane	--		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Bromomethane	--		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Vinyl Chloride	200		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Chloroethane	1,900		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Methylene Chloride	100		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Acetone	200		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Carbon Disulfide	2,700		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Vinyl Acetate	--		11UJ	11UJ	11U	11UJ	12U	10R	10UJ	10UJ
1,1-Dichloroethene	400		11UJ	11UJ	11U	11UJ	12U	10U	10UJ	10UJ
1,1-Dichloroethane	200		11UJ	11UJ	11U	11UJ	12U	10U	10UJ	10UJ
cis-1,2-Dichloroethene	--		11UJ	11UJ	11U	11UJ	12U	10U	10UJ	10UJ
trans-1,2-Dichloroethene	300		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	0.6J
Chloroform	300		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
1,2-Dichloroethane	100		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
2-Butanone	300		11UJ	11UJ	11U	11UJ	12U	10U	10UJ	10UJ
1,1,1-Trichloroethane	800		5UJ	6UJ	6U	5UJ	4J	5U	2J	5UJ
Carbon Tetrachloride	600		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Bromodichloromethane	--		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
1,2-Dichloropropane	--		11UJ	11UJ	11U	11UJ	12U	10U	10UJ	10UJ
cis-1,3-Dichloropropene	--		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Trichloroethene	700		11UJ	11UJ	11U	11UJ	12U	10U	10UJ	10UJ
Dibromochloromethane	--		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
1,1,2-Trichloroethane	--		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Benzene	60		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
trans-1,3-Dichloropropene	--		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Bromoform	--		10BJ	9BJ	24B	7BJ	4JB	7B	17BJ	21BJ
4-Methyl-2-Pentanone	1,000		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
2-Hexanone	--		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Tetrachloroethene	1,400		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Toluene	1,500		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
1,1,2,2-Tetrachloroethane	600		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Chlorobenzene	1,700		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ
Ethylbenzene	5,500		11UJ	11UJ	11U	11UJ	12U	10U	10UJ	10UJ
Styrene	--		11UJ	11UJ	11U	11UJ	12U	10U	10UJ	10UJ
Xylenes (total)	1,200		5UJ	6UJ	6U	5UJ	6U	5U	5UJ	5UJ

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
(1) - Sample was collected at 0-2 inches bls
ft bls - Feet below land surface
NA - Not analyzed
Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation:	SB-11	SB-12	SB-13	SB-14	SB-15	SB-16	SB-17
		Sample Date:	10/20/00	10/27/00	10/24/00	10/19/00	10/19/00	10/19/00	10/19/00
		Sample Depth (ft bls):	8-10	6-8	6-8	6-8	0-2	6-8	0-2
1,2,4-Trichlorobenzene	3,400		350U	360U	340U	350U	360U	370U	340U
1,2-Dichlorobenzene	7,900		350U	360U	340U	350U	360U	370U	340U
1,3-Dichlorobenzene	1,600		350U	360U	340U	350U	360U	370U	340U
1,4-Dichlorobenzene	8,500		350U	360U	340U	350U	360U	370U	340U
2,2'-oxybis(1-Chloropropane)	--		350U	360U	340U	350U	360U	370U	340U
2,4,5-Trichlorophenol	100		1700U	1700U	1600U	1700U	1700U	1800U	1700U
2,4,6-Trichlorophenol	--		350U	360U	340U	350U	360U	370U	340U
2,4-Dichlorophenol	400		350U	360U	340U	350U	360U	370U	340U
2,4-Dimethylphenol	--		350U	360U	340U	350U	360U	370U	340U
2,4-Dinitrophenol	200		1700U	1700U	1600U	1700U	1700U	1800U	1700U
2,4-Dinitrotoluene	--		350U	360U	340U	350U	360U	370U	340U
2,6-Dinitrotoluene	100		350U	360U	340U	350U	360U	370U	340U
2-Chloronaphthalene	--		350U	360U	340U	350U	360U	370U	340U
2-Chlorophenol	800		350U	3J	340U	350U	360U	370U	340U
2-Methylnaphthalene	36,400		350U	360U	340U	350U	17J	370U	36J
2-Methylphenol	100		350U	360U	340U	350U	360U	370U	340U
2-Nitroaniline	430		1700U	1700U	1600U	1700U	1700U	1800U	1700U
2-Nitrophenol	330		350U	360U	340U	350U	360U	370U	340U
3,3'-Dichlorobenzidine	--		700U	720U	670U	700U	720U	740U	690U
3-Nitroaniline	500		1700U	1700U	1600U	1700U	1700U	1800U	1700U
4,6-Dinitro-2-methylphenol	--		1700U	1700U	1600U	1700U	1700U	1800U	1700U
4-Bromophenyl phenyl ether	--		350U	360U	340U	350U	360U	370U	340U
4-Chloro-3-methylphenol	240		350U	360U	340U	350U	360U	370U	340U
4-Chloroaniline	220		350U	360U	340U	350U	360U	370U	340U
4-Chlorophenyl phenyl ether	--		350U	360U	340U	350U	360U	370U	340U
4-Methylphenol	900		350U	360U	340U	350U	360U	370U	340U
4-Nitroaniline	--		1700U	1700U	1600U	1700U	1700U	1800U	1700U
4-Nitrophenol	100		1700U	1700U	1600U	1700U	1700U	1800U	1700U
Acenaphthene	50,000		350U	2J	340U	350U	41J	370U	140J
Acenaphthylene	50,000		350U	360U	340U	350U	56J	370U	33J
Anthracene	50,000		350U	360U	10J	350U	200J	370U	430
Benzo[a]anthracene	224		15J	1J	12J	350U	**600**	370U	**1200**
Benzo[a]pyrene	61		12J	360U	16J	350U	**550**	370U	**1000**
Benzo[b]fluoranthene	220		12J	360U	340U	350U	**490**	370U	**790**
Benzo[g,h,i]perylene	50,000		350U	360U	340U	350U	690	370U	1100
Benzo[k]fluoranthene	220		15J	360U	340U	350U	**550**	370U	**940**
Benzoic acid	--		1700R	5JBR	1600R	1700R	1700R	1800R	1700R

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation:	SB-11	SB-12	SB-13	SB-14	SB-15	SB-16	SB-17
		Sample Date:	10/20/00	10/27/00	10/24/00	10/19/00	10/19/00	10/19/00	10/19/00
		Sample Depth (ft bls):	8-10	6-8	6-8	6-8	0-2	6-8	0-2
Benzyl alcohol	--		350U	360U	340U	350U	360U	370U	340U
bis(2-Chloroethoxy)methane	--		350U	360U	340U	350U	360U	370U	340U
bis(2-Chloroethyl) ether	--		350U	360U	340U	350U	360U	370U	340U
bis(2-Ethylhexyl) phthalate	50,000		350U	360U	340U	350U	360U	370U	340U
Butylbenzyl phthalate	50,000		350U	2J	340U	350U	360U	370U	340U
Carbazole	--		350U	360U	340U	350U	64J	370U	100J
Chrysene	400		350U	360U	18J	350U	**680**	370U	**1300**
Dibenzo[a,h]anthracene	14		350U	360U	340U	350U	**200J**	370U	**360**
Dibenzofuran	6,200		350U	360U	340U	350U	25J	370U	61J
Diethyl phthalate	7,100		350U	360U	340U	350U	360U	370U	340U
Dimethyl phthalate	2,000		350U	360U	340U	350U	360U	370U	340U
Di-n-butyl phthalate	8,100		350U	360U	340U	350U	360U	370U	340U
Di-n-octyl phthalate	50,000		350U	360U	340U	350U	360U	370U	340U
Fluoranthene	50,000		31J	360U	19J	350U	820	9J	1300
Fluorene	50,000		350U	360U	340U	350U	45J	370U	150J
Hexachlorobenzene	41		350U	360U	340U	350U	360U	370U	340U
Hexachlorobutadiene	--		350U	360U	340U	350U	360U	370U	340U
Hexachlorocyclopentadiene	--		350U	360U	340U	350U	360U	370U	340U
Hexachloroethane	--		350U	360U	340U	350U	360U	370U	340U
Indeno[1,2,3-cd]pyrene	3,200		350U	360U	340U	350U	570	370U	970
Isophorone	4,400		350U	360U	340U	350U	360U	370U	340U
Naphthalene	13,000		350U	360U	340U	350U	19J	370U	34J
Nitrobenzene	200		350U	360U	340U	350U	360U	370U	340U
N-Nitrosodi-n-propylamine	--		350U	5J	340U	350U	360U	370U	340U
N-Nitrosodiphenylamine	--		350U	360U	340U	350U	360U	370U	340U
Pentachlorophenol	1,000		1700UJ	1700U	1600UJ	1700UR	1700UR	1800UR	1700UR
Phenanthrene	50,000		12J	1J	340U	350U	570	370U	1200
Phenol	30		350U	360U	340U	350U	360U	370U	340U
Pyrene	50,000		24J	5J	30J	350U	960	7J	1800

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
- - No NYSDEC RSCO available
Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation:	SB-18	SB-19	SB-20	SB-21	SB-22	SB-23	SB-24
		Sample Date:	10/20/00	10/19/00	10/24/00	10/24/00	10/19/00	10/27/00	10/27/00
		Sample Depth (ft bls):	8-10	0-2	4-6	8-10	8-10	0-2	8-10
1,2,4-Trichlorobenzene	3,400		360U	350U	360U	1400U	370U	350U	340U
1,2-Dichlorobenzene	7,900		360U	350U	360U	1400U	370U	350U	340U
1,3-Dichlorobenzene	1,600		360U	350U	360U	1400U	370U	350U	340U
1,4-Dichlorobenzene	8,500		360U	350U	360U	1400U	370U	350U	340U
2,2'-oxybis(1-Chloropropane)	--		360U	350U	360U	1400U	370U	350U	340U
2,4,5-Trichlorophenol	100		1700U	1700U	1700U	6700U	1800U	1700U	1600U
2,4,6-Trichlorophenol	--		360U	350U	360U	1400U	370U	350U	340U
2,4-Dichlorophenol	400		360U	350U	360U	1400U	370U	350U	340U
2,4-Dimethylphenol	--		360U	350U	360U	1400U	370U	350U	340U
2,4-Dinitrophenol	200		1700U	1700U	1700U	6700U	1800U	1700U	1600U
2,4-Dinitrotoluene	--		360U	350U	360U	1400U	370U	350U	340U
2,6-Dinitrotoluene	100		360U	350U	360U	1400U	370U	350U	340U
2-Chloronaphthalene	--		360U	350U	360U	1400U	370U	350U	340U
2-Chlorophenol	800		360U	350U	360U	1400U	370U	350U	340U
2-Methylnaphthalene	36,400		360U	140J	360U	300J	370U	10J	340U
2-Methylphenol	100		360U	350U	360U	1400U	370U	350U	340U
2-Nitroaniline	430		1700U	1700U	1700U	6700U	1800U	1700U	1600U
2-Nitrophenol	330		360U	350U	360U	1400U	370U	350U	340U
3,3'-Dichlorobenzidine	--		710U	700U	720U	2800U	750U	700U	670U
3-Nitroaniline	500		1700U	1700U	1700U	6700U	1800U	1700U	1600U
4,6-Dinitro-2-methylphenol	--		1700U	1700U	1700U	6700U	1800U	1700U	1600U
4-Bromophenyl phenyl ether	--		360U	350U	360U	1400U	370U	350U	340U
4-Chloro-3-methylphenol	240		360U	350U	360U	1400U	370U	350U	340U
4-Chloroaniline	220		360U	350U	360U	1400U	370U	350U	340U
4-Chlorophenyl phenyl ether	--		360U	350U	360U	1400U	370U	350U	340U
4-Methylphenol	900		360U	350U	360U	1400U	370U	350U	340U
4-Nitroaniline	--		1700U	1700U	1700U	6700U	1800U	1700U	1600U
4-Nitrophenol	100		1700U	1700U	1700U	6700U	1800U	1700U	1600U
Acenaphthene	50,000		360U	96J	360U	1200J	370U	57J	340U
Acenaphthylene	50,000		360U	130J	29J	240J	370U	10J	340U
Anthracene	50,000		360U	390	35J	2800	370U	160J	340U
Benzo[a]anthracene	224		19J	660	140J	6300	14J	920	1J
Benzo[a]pyrene	61		16J	530	130J	5100	12J	910	340U
Benzo[b]fluoranthene	220		14J	450	110J	4400	10J	960	340U
Benzo[g,h,i]perylene	50,000		10J	330J	84J	5800	370U	760	340U
Benzo[k]fluoranthene	220		24J	450	170J	4700	16J	920	340U
Benzoic acid	--		1700R	1700R	1700R	6700R	1800R	16JBR	1600R

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	SB-18 10/20/00 8-10	SB-19 10/19/00 0-2	SB-20 10/24/00 4-6	SB-21 10/24/00 8-10	SB-22 10/19/00 8-10	SB-23 10/27/00 0-2	SB-24 10/27/00 8-10
Benzyl alcohol	--		360U	350U	360U	1400U	370U	350U	340U
bis(2-Chloroethoxy)methane	--		360U	350U	360U	1400U	370U	350U	340U
bis(2-Chloroethyl) ether	--		360U	350U	360U	1400U	370U	350U	340U
bis(2-Ethylhexyl) phthalate	50,000		360U	350U	360U	1400U	370U	350U	340U
Butylbenzyl phthalate	50,000		360U	350U	360U	1400U	370U	350U	340U
Carbazole	--		360U	350U	360U	1400U	370U	15J	2J
Chrysene	400		360U	150J	360U	1200J	370U	76J	340U
Dibenzo[a,h]anthracene	14		360U	790	140J	**6400**	12J	**1000**	340U
Dibenzofuran	6,200		360U	**130J**	**34J**	**2000**	370U	**280J**	340U
Diethyl phthalate	7,100		360U	62J	360U	650J	370U	22J	340U
Dimethyl phthalate	2,000		360U	350U	360U	1400U	18JB	350U	340U
Di-n-butyl phthalate	8,100		360U	350U	360U	950J	370U	18J	340U
Di-n-octyl phthalate	50,000		360U	350U	360U	1400U	370U	350U	340U
Fluoranthene	50,000		360U	350U	360U	1400U	370U	350U	340U
Fluorene	50,000		37J	900	300J	8000	33J	1600	340U
Hexachlorobenzene	41		360U	170J	360U	1500	370U	41J	340U
Hexachlorobutadiene	--		360U	350U	360U	1400U	370U	350U	340U
Hexachlorocyclopentadiene	--		360U	350U	360U	1400U	370U	350U	340U
Hexachloroethane	--		360U	350U	360U	1400U	370U	350U	340U
Indeno[1,2,3-cd]pyrene	3,200		360U	350U	360U	1400U	370U	350U	340U
Isophorone	4,400		10J	330J	82J	**5000**	370U	670	340U
Naphthalene	13,000		360U	350U	360U	1400U	370U	350U	340U
Nitrobenzene	200		360U	140J	360U	500J	370U	10J	340U
N-Nitrosodi-n-propylamine	--		360U	350U	**1400**	**1300**	370U	350U	340U
N-Nitrosodiphenylamine	--		360U	350U	360U	1400U	370U	350U	340U
Pentachlorophenol	1,000		360U	350U	360U	1400U	370U	350U	340U
Phenanthrene	50,000		1700UJ	1700UR	1700UJ	6700UJ	1800UR	1700U	1600U
Phenol	30		15J	350U	57J	7900	19J	810	340U
Pyrene	50,000		360U	350U	360U	1400U	370U	350U	340U
			27J	1100	250J	11000	20J	1800	1J

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
- - No NYSDEC RSCO available
Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation:	SB-47	SB-71	SB-72	SB-73
		Sample Date:	3/9/01	4/19/01	4/19/01	4/24/01
		Sample Depth (ft bls):	4-6	10-12	10-12	10-12
1,2,4-Trichlorobenzene	3,400		370U	330U	330U	330U
1,2-Dichlorobenzene	7,900		370U	330U	330U	330U
1,3-Dichlorobenzene	1,600		370U	330U	330U	330U
1,4-Dichlorobenzene	8,500		370U	330U	330U	330U
2,2'-oxybis(1-Chloropropane)	--		370U	330U	330U	330U
2,4,5-Trichlorophenol	100		1800U	1600U	1600U	1600U
2,4,6-Trichlorophenol	--		370U	330U	330U	330U
2,4-Dichlorophenol	400		370U	330U	330U	330U
2,4-Dimethylphenol	--		370U	330U	330U	330U
2,4-Dinitrophenol	200		1800U	1600U	1600U	140J
2,4-Dinitrotoluene	--		370U	330U	330U	330U
2,6-Dinitrotoluene	100		370U	330U	330U	330U
2-Chloronaphthalene	--		370U	330U	330U	330U
2-Chlorophenol	800		370U	330U	330U	330U
2-Methylnaphthalene	36,400		370U	330U	33J	56J
2-Methylphenol	100		370U	330U	330U	330U
2-Nitroaniline	430		1800U	1600U	1600U	1600U
2-Nitrophenol	330		370U	330U	330U	330U
3,3'-Dichlorobenzidine	--		370U	660U	660U	660U
3-Nitroaniline	500		1800U	1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1800U	1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		370U	330U	330U	330U
4-Chloro-3-methylphenol	240		370U	330U	330U	330U
4-Chloroaniline	220		370U	330U	330U	330U
4-Chlorophenyl phenyl ether	--		370U	330U	330U	330U
4-Methylphenol	900		370U	330U	330U	330U
4-Nitroaniline	--		1800U	1600U	1600U	1600U
4-Nitrophenol	100		1800U	1600U	1600U	1600U
Acenaphthene	50,000		370U	330U	59J	330U
Acenaphthylene	50,000		370U	330U	22J	19J
Anthracene	50,000		370U	330U	230J	400J
Benzo[a]anthracene	224		30J	17J	590	760
Benzo[a]pyrene	61		33J	15J	630	540
Benzo[b]fluoranthene	220		32J	15J	460	530
Benzo[g,h,i]perylene	50,000		60J	330U	820	330J
Benzo[k]fluoranthene	220		31J	17J	550	580
Benzoic acid	--		1800R	1600R	1600R	1600R

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation:	SB-47	SB-71	SB-72	SB-73
		Sample Date:	3/9/01	4/19/01	4/19/01	4/24/01
		Sample Depth (ft bls):	4-6	10-12	10-12	10-12
Benzyl alcohol	--		370U	330U	330U	330U
bis(2-Chloroethoxy)methane	--		370U	330U	330U	330U
bis(2-Chloroethyl) ether	--		370U	330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		370U	330U	330U	330U
Butylbenzyl phthalate	50,000		370U	330U	330U	330U
Carbazole	--		370U	330U	62J	90J
Chrysene	400		29J	18J	**670**	**650**
Dibenzo[a,h]anthracene	14		370U	330U	**220J**	**130J**
Dibenzofuran	6,200		370U	330U	74J	100J
Diethyl phthalate	7,100		370U	5J	330U	330U
Dimethyl phthalate	2,000		370U	330U	330U	330U
Di-n-butyl phthalate	8,100		370U	330U	330U	330U
Di-n-octyl phthalate	50,000		370U	330U	330U	330U
Fluoranthene	50,000		49J	27J	880	1200
Fluorene	50,000		370U	330U	74J	240J
Hexachlorobenzene	41		370U	330U	330U	330U
Hexachlorobutadiene	--		370U	330U	330U	330U
Hexachlorocyclopentadiene	--		370U	330UJ	330UJ	330UJ
Hexachloroethane	--		370U	330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		36J	330U	640	320J
Isophorone	4,400		370U	330U	330U	330U
Naphthalene	13,000		370U	330U	36J	40J
Nitrobenzene	200		370U	330U	330U	330U
N-Nitrosodi-n-propylamine	--		370U	330U	330U	330U
N-Nitrosodiphenylamine	--		370U	330U	330U	330U
Pentachlorophenol	1,000		1800U	1600U	1600U	330U
Phenanthrene	50,000		27J	11J	700	1200
Phenol	30		370U	330U	330U	330U
Pyrene	50,000		52J	20J	920	1000

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
- - No NYSDEC RSCO available

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Date: / Sample Depth (ft bls):	GW-16 10/01/1999	SB-73 04/24/2001 11-13	SB-74 04/24/2001 11-13	SB-74 04/24/2001 21-23	SB-74 04/24/2001 31-33	MW-1 06/14/2001 -	MW-2 06/15/2001 -
1,2,4-Trichlorobenzene	5		0.56U	10U	11U	10U	10U	10U	11U
1,2-Dichlorobenzene	3		0.55U	10U	11U	10U	10U	10U	11U
1,3-Dichlorobenzene	3		0.47U	10U	11U	10U	10U	10U	11U
1,4-Dichlorobenzene	3		0.48U	10U	11U	10U	10U	10U	11U
2,2'-oxybis(1-Chloropropane)	--		NA	10U	11U	10U	10U	NA	NA
2,4,5-Trichlorophenol	--		2.1U	25U	27U	26U	25U	50U	53U
2,4,6-Trichlorophenol	--		1.5U	10U	11U	10U	10U	10U	11U
2,4-Dichlorophenol	5		2.3U	10U	11U	10U	10U	10U	11U
2,4-Dimethylphenol	50		2.5U	10U	11U	10U	10U	10U	11U
2,4-Dinitrophenol	10		4U	50U	50U	50U	50U	50U	53U
2,4-Dinitrotoluene	5		0.49U	10U	11U	10U	10U	10U	11U
2,6-Dinitrotoluene	5		0.7U	10U	11U	10U	10U	10U	11U
2-Chloronaphthalene	10		0.29U	10U	11U	10U	10U	10U	11U
2-Chlorophenol	--		3.2U	10U	11U	10U	10U	10U	11U
2-Methylnaphthalene	--		3.1U	4.0J	4.0J	2.0J	2.0J	10U	11U
2-Methylphenol	--		3.3U	10U	11U	10U	10U	10U	11U
2-Nitroaniline	5		2.7U	25U	27U	26U	25U	50U	53U
2-Nitrophenol	--		2.4U	10U	11U	10U	10U	10U	11U
3,3'-Dichlorobenzidine	5		3U	10U	11U	10U	10U	20U	21U
3-Nitroaniline	5		2.5U	25U	27U	26U	25U	50U	53U
4,6-Dinitro-2-methylphenol	--		2.4U	25U	27U	26U	25U	50U	53U
4-Bromophenyl phenyl ether	--		0.85U	10U	11U	10U	10U	10U	11U
4-Chloro-3-methylphenol	--		1.8U	10U	11U	10U	10U	10U	11U
4-Chloroaniline	5		2.2U	10U	11U	10U	10U	10U	11U
4-Chlorophenyl phenyl ether	--		0.37U	10U	11U	10U	10U	NA	NA
4-Methylphenol	--		NA	10U	11U	10U	10U	10U	11U
4-Nitroaniline	5		2.6U	25U	27U	26U	25U	20U	21U
4-Nitrophenol	--		2.7U	25U	27U	26U	25U	50U	53U
Acenaphthene	20		0.35U	10U	11U	10U	10U	10U	11U
Acenaphthylene	20		0.16U	10U	11U	10U	10U	10U	11U
Anthracene	50		0.21U	10U	11U	10U	10U	10U	11U
Benzo[a]anthracene	0.002		0.35U	10U	11U	10U	10U	10U	11U
Benzo[a]pyrene	ND		0.28U	10U	11U	10U	10U	10U	11U
Benzo[b]fluoranthene	0.002		0.42U	10U	11U	10U	10U	10U	11U
Benzo[g,h,i]perylene	--		0.27U	10U	11U	10U	10U	10U	11U
Benzo[k]fluoranthene	0.002		0.45U	10U	11U	10U	10U	10U	11U
Benzoic acid	--		0.71UR	25UR	27UR	26UR	25UR	50UR	53UR
Benzyl alcohol	--		2.4U	10U	11U	10U	10U	10U	11U
bis(2-Chloroethoxy)methane	5		0.24U	10U	11U	10U	10U	10U	11U
bis(2-Chloroethyl) ether	1		0.42U	10U	11U	10U	10U	10U	11U
bis(2-Ethylhexyl) phthalate	5		0.42U	10U	11U	10U	10U	10U	11U
Butylbenzyl phthalate	50		0.25U	10U	11U	10U	10U	0.2J	11U

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Date: / Sample Depth (ft bls):	GW-16 10/01/1999	SB-73 04/24/2001 11-13	SB-74 04/24/2001 11-13	SB-74 04/24/2001 21-23	SB-74 04/24/2001 31-33	MW-1 06/14/2001 -	MW-2 06/15/2001 -
Carbazole	--		0.4U	10U	11U	10U	10U	10U	11U
Chrysene	0.002		0.22U	10U	11U	10U	10U	10U	11U
Dibenzo[a,h]anthracene	--		0.55U	10U	11U	25.0	14.0	10U	11U
Dibenzofuran	--		1.7U	10U	11U	2.0J	61.0	10U	11U
Diethyl phthalate	50		1.7U	10U	11U	10U	10U	0.2J	11U
Dimethyl phthalate	50		0.38U	10U	11U	10U	10U	10U	11U
Di-n-butyl phthalate	--		0.16U	10U	11U	10U	10U	10U	11U
Di-n-octyl phthalate	50		0.3U	10U	11U	10U	10U	10U	11U
Fluoranthene	50		0.25U	1.0J	11U	1.0J	1.0J	10U	11U
Fluorene	50		0.16U	10U	11U	10U	10U	10U	11U
Hexachlorobenzene	0.04		0.53U	10U	11U	10U	10U	10U	11U
Hexachlorobutadiene	0.5		0.97U	10U	11U	10U	10U	10U	11U
Hexachlorocyclopentadiene	5		9.7U	10U	11U	10U	10U	10UJ	11U
Hexachloroethane	5		1.1U	10U	11U	10U	10U	10U	11U
Indeno[1,2,3-cd]pyrene	0.002		0.31U	10U	11U	10U	10U	10U	11U
Isophorone	50		0.13U	10U	11U	10U	10U	10U	11U
Naphthalene	10		0.42U	10U	11U	10U	10U	10U	11U
Nitrobenzene	0.4		0.56U	10U	11U	10U	10U	10U	11U
N-Nitrosodi-n-propylamine	--		0.35U	5.0J	5.0J	3.0J	3.0J	NA	NA
N-Nitrosodiphenylamine	50		0.45U	10U	11U	10U	10U	10U	11U
Pentachlorophenol	--		5.7U	50U	50U	50U	50U	50U	53U
Phenanthrene	50		0.31U	2.0J	11U	2.0J	3.0J	10U	11U
Phenol	--		1.3U	10U	11U	10U	10U	10U	11U
Pyrene	50		0.39U	10U	11U	10U	10U	10U	11U

Note:

J - Indicates that the compound was analyzed for but not detected

- Estimated value

B - Analyte detected in Laboratory blank

R - Validator Qualifier - Rejected

ft bls - Feet below land surface

µg/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- - No NYSDEC AWQSGV available

ND - Not Detected

NA - Not Analyzed

Designations

Hydropunch™ Groundwater Samples - SB-73 and SB-74

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I, or S designation indicates shallow well

Bold Data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Date: / Sample Depth (ft bls):	MW-2I 07/06/2001 -	MW-2D 07/05/2001 -	REP-1 06/15/2001 -	MW-21 06/14/2001 -	MW-22 06/21/2001 -	MW-23 06/14/2001 -
',4-Trichlorobenzene	5		10U	11U	11U	10U	10U	10U
'-Dichlorobenzene	3		10U	11U	11U	10U	10U	10U
-Dichlorobenzene	3		10U	11U	11U	10U	10U	10U
-Dichlorobenzene	3		10U	11U	11U	10U	10U	10U
'-oxybis(1-Chloropropane)	--		NA	NA	NA	NA	NA	NA
',5-Trichlorophenol	--		50U	57U	54U	50U	50U	50U
',6-Trichlorophenol	--		10U	11U	11U	10U	10U	10U
-Dichlorophenol	5		10U	11U	11U	10U	10U	10U
-Dimethylphenol	50		10U	11U	11U	10U	10U	10U
-Dinitrophenol	10		50U	57U	54U	50U	50U	50UJ
-Dinitrotoluene	5		10U	11U	11U	10U	10U	10U
-Dinitrotoluene	5		10U	11U	11U	10U	10U	10U
Chloronaphthalene	10		10U	11U	11U	10U	10U	10U
Chlorophenol	--		10U	11U	11U	10U	10U	10U
Methylnaphthalene	--		10U	11U	11U	10U	10U	10U
Methylphenol	--		10U	11U	11U	10U	10U	10U
Nitroaniline	5		50U	57U	54U	50U	50U	50U
Nitrophenol	--		10U	11U	11U	10U	10U	10U
'-Dichlorobenzidine	5		20U	23U	22U	20U	20U	20U
Nitroaniline	5		50U	57U	54U	50U	50U	50U
-Dinitro-2-methylphenol	--		50U	57U	54U	50U	50U	50U
Bromophenyl phenyl ether	--		10U	11U	11U	10U	10U	10U
Chloro-3-methylphenol	--		10U	11U	11U	10U	10U	10U
Chloroaniline	5		10U	11U	11U	10U	10U	10U
Chlorophenyl phenyl ether	--		NA	NA	NA	NA	NA	NA
Methylphenol	--		10U	11U	11U	10U	10U	10U
Nitroaniline	5		20U	23U	22U	20U	20U	20U
Nitrophenol	--		50U	57U	54U	50U	50U	50U
enaphthene	20		10U	11U	11U	10U	10U	10U
enaphthylene	20		10U	11U	11U	10U	10U	10U
thracene	50		10U	11U	11U	10U	10U	10U
nzo[a]anthracene	0.002		10U	11U	11U	10U	10U	10U
nzo[a]pyrene	ND		10U	11U	11U	10U	10U	10U
nzo[b]fluoranthene	0.002		10U	11U	11U	10U	10U	10U
nzo[g,h,i]perylene	--		10U	11U	11U	10U	10U	10U
nzo[k]fluoranthene	0.002		10U	11U	11U	10U	10U	10U
nzoic acid	--		50UR	57UR	54UR	50UR	50UR	50UR
nzyl alcohol	--		10U	11U	11U	10U	10U	10U
(2-Chloroethoxy)methane	5		10U	11U	11U	10U	10U	10U
(2-Chloroethyl) ether	1		10U	11U	11U	10U	10U	10U
(2-Ethylhexyl) phthalate	5		10U	11U	11U	10U	10U	10U
tylbenzyl phthalate	50		10U	11U	11U	10U	10U	10U

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Date: / Sample Depth (ft bls):	MW-21 07/06/2001 -	MW-2D 07/05/2001 -	REP-1 06/15/2001 -	MW-21 06/14/2001 -	MW-22 06/21/2001 -	MW-23 06/14/2001 -
Carbazole	--		10U	11U	11U	10U	10U	10U
Chrysene	0.002		10U	11U	11U	10U	10U	10U
Dibenzo[a,h]anthracene	--		10U	11U	11U	10U	10U	10U
Dibenzofuran	--		10U	11U	11U	10U	10U	10U
Diethyl phthalate	50		0.5J	11U	11U	0.1J	10U	10U
Dimethyl phthalate	50		10U	11U	11U	10U	10U	10U
Di-n-butyl phthalate	--		10U	11U	11U	10U	10U	10U
Di-n-octyl phthalate	50		10U	11U	11U	10U	10U	10U
Fluoranthene	50		10U	11U	11U	10U	10U	10U
Fluorene	50		10U	11U	11U	10U	10U	10U
Hexachlorobenzene	0.04		10U	11U	11U	10U	10U	10U
Hexachlorobutadiene	0.5		10U	11U	11U	10U	10U	10U
Hexachlorocyclopentadiene	5		10U	11U	11U	10UJ	10U	10UJ
Hexachloroethane	5		10U	11U	11U	10U	10U	10U
Indeno[1,2,3-cd]pyrene	0.002		10U	11U	11U	10U	10U	10U
Isophorone	50		10U	11U	11U	10U	10U	10U
Naphthalene	10		10U	11U	11U	10U	10U	10U
Nitrobenzene	0.4		10U	11U	11U	10U	10U	10U
N-Nitrosodi-n-propylamine	--		NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	50		10U	11U	11U	10U	10U	10U
Pentachlorophenol	--		50U	57U	54U	50U	50U	50U
Phenanthrene	50		10U	11U	11U	10U	10U	10U
Phenol	--		10U	11U	11U	10U	10U	10U
Pyrene	50		10U	11U	11U	10U	10U	10U

Note:

J - Indicates that the compound was analyzed for but not detected

- Estimated value

B - Analyte detected in Laboratory blank

R - Validator Qualifier - Rejected

ft bls - Feet below land surface

µg/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- - No NYSDEC AWQSGV available

ND - Not Detected

NA - Not Analyzed

Designations

Hydropunch™ Groundwater Samples - SB-73 and SB-74

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I, or S designation indicates shallow well

Bold Data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Date: / Sample Depth (ft bls):	MW-23I 07/02/2001 -	MW-24 06/15/2001 -	MW-25 06/15/2001 -	MW-26 06/19/2001 -	MW-26I 06/19/2001 -	MW-26D 07/09/2001 -
,2,4-Trichlorobenzene	5		10U	11U	10U	11U	10U	10U
,2-Dichlorobenzene	3		10U	11U	10U	11U	0.7J	10U
,3-Dichlorobenzene	3		10U	11U	10U	11U	10U	10U
,4-Dichlorobenzene	3		10U	11U	10U	11U	0.3J	10U
',2'-oxybis(1-Chloropropane)	--		NA	NA	NA	NA	NA	NA
',4,5-Trichlorophenol	--		50U	53U	52U	56U	50U	50U
',4,6-Trichlorophenol	--		10U	11U	10U	11U	10U	10U
',4-Dichlorophenol	5		10U	11U	10U	11U	10U	10U
',4-Dimethylphenol	50		10U	11U	10U	11U	10U	10U
',4-Dinitrophenol	10		50U	53U	52U	56U	50U	50U
',4-Dinitrotoluene	5		10U	11U	10U	11U	10U	10U
',6-Dinitrotoluene	5		10U	11U	10U	11U	10U	10U
'-Chloronaphthalene	10		10U	11U	10U	11U	10U	10U
'-Chlorophenol	--		10U	11U	10U	11U	10U	10U
'-Methylnaphthalene	--		10U	11U	10U	11U	0.1J	10U
'-Methylphenol	--		10U	11U	10U	11U	10U	10U
'-Nitroaniline	5		50U	53U	52U	56U	50U	50U
'-Nitrophenol	--		10U	11U	10U	11U	10U	10U
',3'-Dichlorobenzidine	5		20U	21U	21U	22U	20U	20U
-Nitroaniline	5		50U	53U	52U	56U	50U	50U
,6-Dinitro-2-methylphenol	--		50U	53U	52U	56U	50U	50U
-Bromophenyl phenyl ether	--		10U	11U	10U	11U	10U	10U
-Chloro-3-methylphenol	--		10U	11U	10U	11U	10U	10U
-Chloroaniline	5		10U	11U	10U	11U	10U	10U
-Chlorophenyl phenyl ether	--		NA	NA	NA	NA	NA	NA
-Methylphenol	--		10U	11U	10U	11U	10U	10U
-Nitroaniline	5		20U	21U	21U	22U	20U	20U
-Nitrophenol	--		50U	53U	52U	56U	50U	50U
cenaphthene	20		10U	11U	10U	11U	10U	10U
cenaphthylene	20		10U	11U	10U	11U	10U	10U
nthracene	50		10U	0.1J	10U	11U	0.1J	10U
enzo[a]anthracene	0.002		10U	11U	10U	11U	10U	10U
enzo[a]pyrene	ND		10U	11U	10U	11U	10U	10U
enzo[b]fluoranthene	0.002		10U	11U	10U	11U	10U	10U
enzo[g,h,i]perylene	--		10U	11U	10U	11U	10U	10U
enzo[k]fluoranthene	0.002		10U	11U	10U	11U	10U	10U
enzoic acid	--		50UR	53UR	52UR	56UR	50UR	50UR
enzyl alcohol	--		10U	11U	10U	11U	10U	10U
is(2-Chloroethoxy)methane	5		10U	11U	10U	11U	10U	10U
is(2-Chloroethyl) ether	1		10U	11U	10U	11U	10U	10U
is(2-Ethylhexyl) phthalate	5		10U	11U	10U	11U	10U	10U
utylbenzyl phthalate	50		10U	11U	10U	11U	10U	10U

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Date: / Sample Depth (ft bls):	MW-23I 07/02/2001 -	MW-24 06/15/2001 -	MW-25 06/15/2001 -	MW-26 06/19/2001 -	MW-26I 06/19/2001 -	MW-26D 07/09/2001 -
Carbazole	--		10U	11U	10U	11U	10U	10U
Chrysene	0.002		10U	11U	10U	11U	10U	10U
Dibenzo[a,h]anthracene	--		10U	11U	10U	11U	10U	10U
Dibenzofuran	--		10U	11U	10U	11U	10U	10U
Diethyl phthalate	50		10U	11U	10U	11U	0.5J	10U
Dimethyl phthalate	50		10U	11U	10U	11U	10U	10U
Di-n-butyl phthalate	--		10U	11U	10U	11U	10U	10U
Di-n-octyl phthalate	50		10U	11U	10U	11U	10U	10U
Fluoranthene	50		0.3J	11U	10U	11U	0.1J	10U
Fluorene	50		10U	11U	10U	11U	10U	10U
Hexachlorobenzene	0.04		10U	11U	10U	11U	10U	10U
Hexachlorobutadiene	0.5		10U	11U	10U	11U	10U	10U
Hexachlorocyclopentadiene	5		10U	11U	10U	11U	10U	10UJ
Hexachloroethane	5		10U	11U	10U	11U	10U	10U
Indeno[1,2,3-cd]pyrene	0.002		10U	11U	10U	11U	10U	10U
Isophorone	50		10U	11U	10U	11U	10U	10U
Naphthalene	10		10U	11U	10U	11U	10U	0.2J
Nitrobenzene	0.4		10U	11U	10U	11U	10U	10U
N-Nitrosodi-n-propylamine	--		NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	50		10U	11U	10U	11U	10U	10U
Pentachlorophenol	--		50U	53U	52U	56U	50U	50U
Phenanthrene	50		10U	11U	10U	11U	0.1J	10U
Phenol	--		10U	11U	10U	11U	10U	10U
Pyrene	50		0.2J	11U	10U	11U	0.1J	10U

Note:

U - Indicates that the compound was analyzed for but not detected

J - Estimated value

B - Analyte detected in Laboratory blank

R - Validator Qualifier - Rejected

ft bls - Feet below land surface

µg/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

-- - No NYSDEC AWQSGV available

ND - Not Detected

NA - Not Analyzed

Designations

Hydropunch™ Groundwater Samples - SB-73 and SB-74

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I, or S designation indicates shallow well

Bold Data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Date: / Sample Depth (ft bls):	MW-27 06/13/2001 -	MW-28 06/13/2001 -	MW-29S 06/29/2001 -	MW-29I 07/02/2001 -	MW-29D 07/19/2001 -	MW-30S 06/18/2001 -
1,2,4-Trichlorobenzene	5		10U	10U	11U	11U	10U	10U
1,2-Dichlorobenzene	3		10U	10U	11U	11U	10U	10U
1,3-Dichlorobenzene	3		10U	10U	11U	11U	10U	10U
1,4-Dichlorobenzene	3		10U	10U	11U	11U	10U	10U
2,2'-oxybis(1-Chloropropane)	--		NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	--		50U	50U	54U	56U	50U	50UJ
2,4,6-Trichlorophenol	--		10U	10U	11U	11U	10U	10U
2,4-Dichlorophenol	5		10U	10U	11U	11U	10U	10U
2,4-Dimethylphenol	50		10U	10U	11U	11U	10U	10U
2,4-Dinitrophenol	10		50U	50U	54U	56U	50U	50U
2,4-Dinitrotoluene	5		10U	10U	11U	11U	10U	10U
2,6-Dinitrotoluene	5		10U	10U	11U	11U	10U	10U
2-Chloronaphthalene	10		10U	10U	11U	11U	10U	10U
2-Chlorophenol	--		10U	10U	11U	11U	10U	10U
2-Methylnaphthalene	--		10U	10U	11U	11U	10U	10U
2-Methylphenol	--		10U	10U	11U	11U	10U	10U
2-Nitroaniline	5		50U	50U	54U	56U	50U	50U
2-Nitrophenol	--		10U	10U	11U	11U	10U	10U
3,3'-Dichlorobenzidine	5		20U	20U	22U	22U	20U	20U
3-Nitroaniline	5		50U	50U	54U	56U	50U	50U
4,6-Dinitro-2-methylphenol	--		50U	50U	54U	56U	50U	50U
4-Bromophenyl phenyl ether	--		10U	10U	11U	11U	10U	10U
4-Chloro-3-methylphenol	--		10U	10U	11U	11U	10U	10U
4-Chloroaniline	5		10U	10U	11U	11U	10U	10U
4-Chlorophenyl phenyl ether	--		NA	NA	NA	NA	NA	NA
4-Methylphenol	--		10U	10U	11U	11U	10U	10U
4-Nitroaniline	5		20U	20U	22U	22U	20U	20U
4-Nitrophenol	--		50U	50U	54U	56U	50U	50U
Acenaphthene	20		10U	10U	11U	11U	10U	10U
Acenaphthylene	20		10U	10U	11U	11U	10U	10U
Anthracene	50		10U	10U	0.4J	11U	10U	10U
Benzo[a]anthracene	0.002		10U	10U	11U	11U	10U	10U
Benzo[a]pyrene	ND		10U	0.2J	0.7J	11U	10U	10U
Benzo[b]fluoranthene	0.002		10U	10U	11U	11U	10U	10U
Benzo[g,h,i]perylene	--		10U	0.2J	11U	11U	10U	10U
Benzo[k]fluoranthene	0.002		10U	10U	11U	11U	10U	10U
Benzoic acid	--		50UR	50UR	54UR	56UR	50UR	50UR
Benzyl alcohol	--		10U	10U	11U	11U	10U	10U
bis(2-Chloroethoxy)methane	5		10U	10U	11U	11U	10U	10U
bis(2-Chloroethyl) ether	1		10U	10U	11U	11U	10U	10U
bis(2-Ethylhexyl) phthalate	5		10U	10U	11U	11U	10U	10U
Butylbenzyl phthalate	50		10U	10U	11U	11U	10U	10U

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: Sample Date: Sample Depth (ft bls):	MW-27 06/13/2001 -	MW-28 06/13/2001 -	MW-29S 06/29/2001 -	MW-29I 07/02/2001 -	MW-29D 07/19/2001 -	MW-30S 06/18/2001 -
Carbazole	--		10U	10U	11U	11U	10U	10U
Chrysene	0.002		10U	10U	11U	11U	10U	10U
Dibenzo[a,h]anthracene	--		10U	10U	11U	11U	10U	10U
Dibenzofuran	--		10U	10U	11U	11U	10U	10U
Diethyl phthalate	50		10U	0.1J	11U	11U	10U	0.1J
Dimethyl phthalate	50		10U	10U	11U	11U	10U	10U
Di-n-butyl phthalate	--		10U	10U	11U	11U	10U	10U
Di-n-octyl phthalate	50		10U	10U	11U	11U	10U	10U
Fluoranthene	50		10U	0.3J	1J	0.5J	10U	10U
Fluorene	50		10U	10U	11U	11U	10U	10U
Hexachlorobenzene	0.04		10U	10U	11U	11U	10U	10U
Hexachlorobutadiene	0.5		10U	10U	11U	11U	10U	10U
Hexachlorocyclopentadiene	5		10U	10U	11U	11U	10U	10U
Hexachloroethane	5		10U	10U	11U	11U	10U	10U
Indeno[1,2,3-cd]pyrene	0.002		10U	10U	11U	11U	10U	10U
Isophorone	50		10U	10U	11U	11U	10U	10U
Naphthalene	10		0.1J	0.2J	11U	11U	0.4J	10U
Nitrobenzene	0.4		10U	10U	11U	11U	10U	10U
N-Nitrosodi-n-propylamine	--		NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	50		10U	10U	11U	11U	10U	10U
Pentachlorophenol	--		50U	50U	54U	56U	50U	50U
Phenanthrene	50		10U	0.1J	0.9J	0.3J	0.6J	10U
Phenol	--		10U	10U	11U	11U	10U	10U
Pyrene	50		10U	0.4J	1J	0.4J	10U	10U

Note:

J - Indicates that the compound was analyzed for but not detected

- Estimated value

B - Analyte detected in Laboratory blank

R - Validator Qualifier - Rejected

ft bls - Feet below land surface

µg/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- - No NYSDEC AWQSGV available

ND - Not Detected

NA - Not Analyzed

Designations

Hydropunch™ Groundwater Samples - SB-73 and SB-74

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-2I through MW-35

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I, or S designation indicates shallow well

Bold Data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Date: / Sample Depth (ft bls):	MW-30I 06/28/2001 -	MW-31S 06/29/2001 -	MW-31I 07/11/2001 -	MW-31D 07/16/2001 -	MW-32S 06/21/2001 -	MW-33S 06/26/2001 -
1,2,4-Trichlorobenzene	5		10U	11U	10U	10U	10U	10U
1,2-Dichlorobenzene	3		10U	11U	10U	10U	10U	1J
1,3-Dichlorobenzene	3		10U	11U	10U	10U	10U	10U
1,4-Dichlorobenzene	3		10U	11U	10U	10U	10U	10U
2,2'-oxybis(1-Chloropropane)	--		NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	--		50U	55U	50U	50U	50U	50U
2,4,6-Trichlorophenol	--		10U	11U	10U	10U	10U	10U
2,4-Dichlorophenol	5		10U	11U	10U	10U	10U	10U
2,4-Dimethylphenol	50		10U	11U	10U	10U	10U	10U
2,4-Dinitrophenol	10		50U	55U	50U	50U	50U	50U
2,4-Dinitrotoluene	5		10U	11U	10U	10U	10U	10U
2,6-Dinitrotoluene	5		10U	11U	10U	10U	10U	10U
2-Chloronaphthalene	10		10U	11U	10U	10U	10U	10U
2-Chlorophenol	--		10U	11U	10U	10U	10U	10U
2-Methylnaphthalene	--		10U	11U	10U	10U	10U	10U
2-Methylphenol	--		10U	11U	10U	10U	10U	10U
2-Nitroaniline	5		50U	55U	50U	50U	50U	50U
2-Nitrophenol	--		10U	11U	10U	10U	10U	10U
3,3'-Dichlorobenzidine	5		20U	22U	20U	20U	20U	20U
3-Nitroaniline	5		50U	55U	50U	50U	50U	50U
4,6-Dinitro-2-methylphenol	--		50U	55U	50U	50U	50U	50U
4-Bromophenyl phenyl ether	--		10U	11U	10U	10U	10U	10U
4-Chloro-3-methylphenol	--		10U	11U	10U	10U	10U	10U
4-Chloroaniline	5		10U	11U	10U	10U	10U	10U
4-Chlorophenyl phenyl ether	--		NA	NA	NA	NA	NA	NA
4-Methylphenol	--		10U	11U	10U	10U	10U	10U
4-Nitroaniline	5		20U	22U	20U	20U	20U	20U
4-Nitrophenol	--		50U	55U	50U	50U	50U	50U
Acenaphthene	20		10U	11U	10U	10U	10U	10U
Acenaphthylene	20		10U	11U	10U	10U	10U	10U
Anthracene	50		10U	11U	10U	10U	10U	10U
Benzo[a]anthracene	0.002		10U	11U	10U	10U	10U	10U
Benzo[a]pyrene	ND		10U	11U	10U	10U	10U	10U
Benzo[b]fluoranthene	0.002		10U	11U	10U	10U	10U	10U
Benzo[g,h,i]perylene	--		10U	11U	10U	10U	10U	10U
Benzo[k]fluoranthene	0.002		10U	11U	10U	10U	10U	10U
Benzoic acid	--		50UR	55UR	50UR	50UR	50UR	50UR
Benzyl alcohol	--		10U	11U	10U	10U	10U	10U
bis(2-Chloroethoxy)methane	5		10U	11U	10U	10U	10U	10U
bis(2-Chloroethyl) ether	1		10U	11U	10U	10U	10U	10U
bis(2-Ethylhexyl) phthalate	5		10U	11U	10U	10U	10U	10U
Butylbenzyl phthalate	50		10U	11U	10U	10U	10U	10U

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: Sample Date: Sample Depth (ft bls):	MW-30I 06/28/2001 -	MW-31S 06/29/2001 -	MW-31I 07/11/2001 -	MW-31D 07/16/2001 -	MW-32S 06/21/2001 -	MW-33S 06/26/2001 -
Carbazole	--		10U	11U	10U	10U	10U	10U
Chrysene	0.002		10U	11U	10U	10U	10U	10U
Dibenzo[a,h]anthracene	--		10U	11U	10U	10U	10U	10U
Dibenzofuran	--		10U	11U	10U	10U	10U	10U
Diethyl phthalate	50		0.6J	11U	10U	10U	10U	10U
Dimethyl phthalate	50		10U	11U	10U	10U	10U	10U
Di-n-butyl phthalate	--		10U	11U	10U	10U	10U	10U
Di-n-octyl phthalate	50		10U	11U	10U	10U	10U	10U
Fluoranthene	50		0.2J	11U	10U	10U	10U	10U
Fluorene	50		10U	11U	10U	10U	10U	10U
Hexachlorobenzene	0.04		10U	11U	10U	10U	10U	10U
Hexachlorobutadiene	0.5		10U	11U	10U	10U	10U	10U
Hexachlorocyclopentadiene	5		10U	11U	10UJ	10U	10U	10U
Hexachloroethane	5		10U	11U	10U	10U	10U	10U
Indeno[1,2,3-cd]pyrene	0.002		10U	11U	10U	10U	10U	10U
Isophorone	50		10U	11U	10U	10U	10U	10U
Naphthalene	10		10U	11U	10U	10U	10U	10U
Nitrobenzene	0.4		10U	11U	10U	10U	10U	10U
N-Nitrosodi-n-propylamine	--		NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	50		0.3J	11U	10U	10U	10U	10U
Pentachlorophenol	--		50U	55U	50U	50U	50U	50U
Phenanthrene	50		0.1J	11U	10U	10U	10U	10U
Phenol	--		10U	11U	10U	10U	10U	10U
Pyrene	50		0.2J	11U	10U	10U	10U	10U

Note:

U - Indicates that the compound was analyzed for but not detected

J - Estimated value

B - Analyte detected in Laboratory blank

R - Validator Qualifier - Rejected

ft bls - Feet below land surface

µg/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

-- - No NYSDEC AWQSGV available

ND - Not Detected

NA - Not Analyzed

Designations

Hydropunch™ Groundwater Samples - SB-73 and SB-74

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I, or S designation indicates shallow well

Bold Data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: Sample Date: Sample Depth (ft bls):	MW-33I 06/26/2001 -	REP-2 06/26/2001 -	MW-33D 07/13/2001 -	REP-3 07/13/2001 -	MW-34S 06/29/2001 -	MW-34I 07/06/2001 -
,2,4-Trichlorobenzene	5		10U	10U	10U	10U	11U	10U
,2-Dichlorobenzene	3		10U	10U	10U	10U	11U	10U
,3-Dichlorobenzene	3		10U	10U	10U	10U	11U	10U
,4-Dichlorobenzene	3		10U	10U	10U	10U	11U	10U
,2'-oxybis(1-Chloropropane)	--		NA	NA	NA	NA	NA	NA
,4,5-Trichlorophenol	--		50U	50U	52U	50U	55U	50U
,4,6-Trichlorophenol	--		10U	10U	10U	10U	11U	10U
,4-Dichlorophenol	5		10U	10U	10U	10U	11U	10U
,4-Dimethylphenol	50		10U	10U	10U	10U	11U	10U
,4-Dinitrophenol	10		50U	50UJ	52U	50U	55U	50U
,4-Dinitrotoluene	5		10U	10U	10U	10U	11U	10U
,6-Dinitrotoluene	5		10U	10U	10U	10U	11U	10U
-Chloronaphthalene	10		10U	10U	10U	10U	11U	10U
-Chlorophenol	--		10U	10U	10U	10U	11U	10U
-Methylnaphthalene	--		10U	10U	10U	10U	11U	0.3J
-Methylphenol	--		10U	10U	10U	10U	11U	10U
-Nitroaniline	5		50U	50U	52U	50U	55U	50U
-Nitrophenol	--		10U	10U	10U	10U	11U	10U
,3'-Dichlorobenzidine	5		20U	20U	21U	20U	22U	20U
-Nitroaniline	5		50U	50U	52U	50U	55U	50U
,6-Dinitro-2-methylphenol	--		50U	50U	52U	50U	55U	50U
-Bromophenyl phenyl ether	--		10U	10U	10U	10U	11U	10U
-Chloro-3-methylphenol	--		10U	10U	10U	10U	11U	10U
-Chloroaniline	5		10U	10U	10U	10U	11U	10U
-Chlorophenyl phenyl ether	--		NA	NA	NA	NA	NA	NA
-Methylphenol	--		10U	10U	10U	10U	11U	10U
-Nitroaniline	5		20U	20U	21U	20U	22U	20U
-Nitrophenol	--		50U	50U	52U	50U	55U	50U
cenaphthene	20		10U	10U	10U	10U	11U	10U
cenaphthylene	20		10U	10U	10U	10U	11U	10U
nthracene	50		10U	10U	10U	10U	11U	10U
enzo[a]anthracene	0.002		10U	10U	10U	10U	11U	10U
enzo[a]pyrene	ND		10U	10U	10U	10U	11U	10U
enzo[b]fluoranthene	0.002		10U	10U	10U	10U	11U	10U
enzo[g,h,i]perylene	--		10U	10U	10U	10U	11U	10U
enzo[k]fluoranthene	0.002		10U	10U	10U	10U	11U	10U
enzoic acid	--		50UR	50UR	52UR	50UR	55UR	50UR
enzyl alcohol	--		10U	10U	10U	10U	11U	4J
is(2-Chloroethoxy)methane	5		10U	10U	10U	10U	11U	10U
is(2-Chloroethyl) ether	1		10U	10U	10U	10U	11U	10U
is(2-Ethylhexyl) phthalate	5		10U	10U	10U	10U	11U	10U
utylbenzyl phthalate	50		10U	10U	10U	10U	11U	10U

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation: Sample Date: Sample Depth (ft bls):	MW-33I 06/26/2001 -	REP-2 06/26/2001 -	MW-33D 07/13/2001 -	REP-3 07/13/2001 -	MW-34S 06/29/2001 -	MW-34I 07/06/2001 -
Carbazole	--		10U	10U	10U	10U	11U	10U
Chrysene	0.002		10U	10U	10U	10U	11U	10U
Dibenzo[a,h]anthracene	--		10U	10U	10U	10U	11U	10U
Dibenzofuran	--		10U	10U	10U	10U	11U	10U
Diethyl phthalate	50		10U	10U	0.3J	0.2J	11U	0.2J
Dimethyl phthalate	50		10U	10U	10U	10U	11U	10U
Di-n-butyl phthalate	--		10U	10U	10U	10U	11U	10U
Di-n-octyl phthalate	50		10U	10U	10U	10U	11U	10U
Fluoranthene	50		10U	10U	10U	10U	11U	10U
Fluorene	50		10U	10U	10U	10U	11U	10U
Hexachlorobenzene	0.04		10U	10U	10U	10U	11U	10U
Hexachlorobutadiene	0.5		10U	10U	10U	10U	11U	10U
Hexachlorocyclopentadiene	5		10U	10U	10U	10U	11U	10U
Hexachloroethane	5		10U	10U	10U	10U	11U	10U
Indeno[1,2,3-cd]pyrene	0.002		10U	10U	10U	10U	11U	10U
Isophorone	50		10U	10U	10U	10U	11U	10U
Naphthalene	10		10U	10U	10U	10U	11U	0.7J
Nitrobenzene	0.4		10U	10U	10U	10U	11U	10U
N-Nitrosodi-n-propylamine	--		NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	50		10U	10U	10U	10U	11U	10U
Pentachlorophenol	--		50U	50U	52U	50U	55U	50U
Phenanthrene	50		10U	10U	10U	10U	11U	0.1J
Phenol	--		10U	10U	10U	10U	11U	0.5J
Pyrene	50		10U	10U	10U	10U	11U	10U

Note:

J - Indicates that the compound was analyzed for but not detected

- Estimated value

I - Analyte detected in Laboratory blank

: - Validator Qualifier - Rejected

t bls - Feet below land surface

g/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- - No NYSDEC AWQSGV available

ND - Not Detected

NA - Not Analyzed

Designations

Hydropunch™ Groundwater Samples - SB-73 and SB-74

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

D - Deep

- Intermediate

- Shallow

Monitoring Well without a D, I, or S designation indicates shallow well

Bold Data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation:	MW-34D	MW-35S	MW-35I	MW-35D
		Sample Date:	07/19/2001	06/28/2001	06/28/2001	07/19/2001
		Sample Depth (ft bls):	-	-	-	-
1,2,4-Trichlorobenzene	5		11U	10U	10U	11U
1,2-Dichlorobenzene	3		11U	10U	10U	11U
1,3-Dichlorobenzene	3		11U	10U	10U	11U
1,4-Dichlorobenzene	3		11U	10U	0.5J	11U
2,2'-oxybis(1-Chloropropane)	--		NA	NA	NA	NA
2,4,5-Trichlorophenol	--		53U	50U	52U	53U
2,4,6-Trichlorophenol	--		11U	10U	10U	11U
2,4-Dichlorophenol	5		11U	10U	10U	11U
2,4-Dimethylphenol	50		11U	10U	10U	11U
2,4-Dinitrophenol	10		53U	50U	52U	53U
2,4-Dinitrotoluene	5		11U	10U	10U	11U
2,6-Dinitrotoluene	5		11U	10U	10U	11U
2-Chloronaphthalene	10		11U	10U	10U	11U
2-Chlorophenol	--		11U	10U	10U	11U
2-Methylnaphthalene	--		11U	10U	10U	11U
2-Methylphenol	--		11U	10U	10U	11U
2-Nitroaniline	5		53U	50U	52U	53U
2-Nitrophenol	--		11U	10U	10U	11U
3,3'-Dichlorobenzidine	5		21U	20U	21U	21U
3-Nitroaniline	5		53U	50U	52U	53U
4,6-Dinitro-2-methylphenol	--		53U	50U	52U	53U
4-Bromophenyl phenyl ether	--		11U	10U	10U	11U
4-Chloro-3-methylphenol	--		11U	10U	10U	11U
4-Chloroaniline	5		11U	10U	10U	11U
4-Chlorophenyl phenyl ether	--		NA	NA	NA	NA
4-Methylphenol	--		11U	10U	10U	11U
4-Nitroaniline	5		21U	20U	21U	21U
4-Nitrophenol	--		53U	50U	52U	53U
Acenaphthene	20		11U	10U	10U	11U
Acenaphthylene	20		11U	10U	10U	11U
Anthracene	50		11U	10U	10U	11U
Benzo[a]anthracene	0.002		11U	10U	10U	11U
Benzo[a]pyrene	ND		11U	10U	10U	11U
Benzo[b]fluoranthene	0.002		11U	10U	10U	11U
Benzo[g,h,i]perylene	--		11U	10U	10U	11U
Benzo[k]fluoranthene	0.002		11U	10U	10U	11U
Benzoic acid	--		53UR	50UR	52UR	53UR
Benzyl alcohol	--		11U	10U	10U	11U
Bis(2-Chloroethoxy)methane	5		11U	10U	10U	11U
Bis(2-Chloroethyl) ether	1		11U	10U	10U	11U
Bis(2-Ethylhexyl) phthalate	5		11U	10U	10U	11U
Butylbenzyl phthalate	50		11U	10U	10U	11U

Table 7. Summary of Semivolatile Organic Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Designation:	MW-34D	MW-35S	MW-35I	MW-35D
		Sample Date:	07/19/2001	06/28/2001	06/28/2001	07/19/2001
		Sample Depth (ft bls):	-	-	-	-
Carbazole	--		11U	10U	10U	11U
Chrysene	0.002		11U	10U	10U	11U
Dibenzo[a,h]anthracene	--		11U	10U	10U	11U
Dibenzofuran	--		11U	10U	10U	11U
Diethyl phthalate	50		11U	10U	0.2J	11U
Dimethyl phthalate	50		11U	10U	10U	11U
Di-n-butyl phthalate	--		11U	10U	10U	11U
Di-n-octyl phthalate	50		11U	10U	10U	11U
Fluoranthene	50		11U	10U	10U	11U
Fluorene	50		11U	10U	10U	11U
Hexachlorobenzene	0.04		11U	10U	10U	11U
Hexachlorobutadiene	0.5		11U	10U	10U	11U
Hexachlorocyclopentadiene	5		11U	10UJ	10UJ	11U
Hexachloroethane	5		11U	10U	10U	11U
Indeno[1,2,3-cd]pyrene	0.002		11U	10U	10U	11U
Isophorone	50		11U	10U	10U	11U
Naphthalene	10		0.4J	10U	10U	11U
Nitrobenzene	0.4		11U	10U	10U	11U
N-Nitrosodi-n-propylamine	--		NA	NA	NA	NA
N-Nitrosodiphenylamine	50		11U	10U	10U	11U
Pentachlorophenol	--		53U	50U	52U	53U
Phenanthrene	50		11U	10U	10U	11U
Phenol	--		11U	10U	10U	11U
Pyrene	50		11U	10U	10U	11U

Note:

J - Indicates that the compound was analyzed for but not detected

- Estimated value

B - Analyte detected in Laboratory blank

R - Validator Qualifier - Rejected

ft bls - Feet below land surface

µg/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- - No NYSDEC AWQSGV available

ND - Not Detected

NA - Not Analyzed

Designations

Hydropunch™ Groundwater Samples - SB-73 and SB-74

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I, or S designation indicates shallow well

Bold Data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Depth (ft bls): / Filtered/Unfiltered: / Sample Date:	GW-16 - Total 10/01/1999	GW-16 - Dissolved 10/01/1999	MW-1 - Dissolved 06/14/2001	MW-1 - Total 06/14/2001	MW-2 - Dissolved 06/15/2001	MW-2 - Total 06/15/2001	MW-21 - Dissolved 07/06/2001	MW-21 - Total 07/06/2001
Aluminum	-		720000	180U	34.8B	9080	20.5U	10100	50U	2030
Antimony	3		10U	10U	4.5U	4.5U	4.4U	4.4U	4.5U	4.5U
Arsenic	25		**330**	6U	4.1U	4.1U	4.2U	4.2U	4.1U	4.1U
Barium	1,000		**9600**	35	32.8B	112B	21.3B	137B	30.6B	54.1B
Beryllium	3		**63**	0.7U	0.5U	0.73B	0.5U	0.5U	0.5U	0.5U
Cadmium	5		11U	1.3	0.8U	0.8U	0.9U	0.9U	0.8U	0.8U
Calcium	-		240000	33000	11000	13700	151000	172000	36100	46400
Chromium	50		**2900**	4.6U	1.1B	27	23.8	**83.7**	10.9	31.6
Cobalt	-		**1600**	8U	1.4U	4.7B	1.6U	17.4B	2.2B	4.7B
Copper	200		**2400**	70U	5.7B	24.4B	2.6B	30	5U	13.3B
Cyanide	200		NA	NA	NA	10U	NA	10U	NA	10U
Hexavalent Chromium	50		NA	NA	NA	10U	NA	20	NA	10U
Iron	300		**2300000**	**3300**	151	20700	20.5U	**19200**	475	**5440**
Lead	25		**750**	7.6U	2.6U	7.9	2U	16.9	8.4	9.2
Magnesium	35,000		**380000**	12000	5990	9930	20000	25400	10800	13800
Manganese	300		**32000**	**820**	**611**	**1200**	1.8B	**1030**	**420**	**741**
Mercury	0.7		0.70	0.3U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
Nickel	100		**3600**	45	6.5B	24.7B	2.3B	30.6B	5B	12.7B
Potassium	-		340000	5500	4320B	8080J	18700	24800	38200J	31700J
Selenium	10		40U	40U	4.6U	4.6U	4.9UN	4.9UN	4.6U	4.6U
Silver	50		2.5U	2.5U	1U	1U	1U	1U	1U	1U
Sodium	20,000		**70000**	**70000**	7240	9360	16000	18600	**81200**	**87400**
Thallium	12.0		7.5U	7.5U	9.2U	9.2U	9.1U	9.1U	9.2U	9.2U
Vanadium	-		2500	17U	0.9U	25.7B	1U	26.8B	2.8B	8.2B
Zinc	2,000		**6200**	30U	34.6	82.5	37.4	70.6	20U	38.7

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ft bls - Feet below land surface

µg/L - Micrograms per liter

B - Estimated value

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- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

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Designations

Geoprobe™ Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

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Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Depth (ft bls): / Filtered/Unfiltered: / Sample Date:	MW-2D - Dissolved 06/27/2001	MW-2D - Total 06/27/2001	REP-1 - Dissolved 06/15/2001	REP-1 - Total 06/15/2001	MW-21 - Dissolved 06/14/2001	MW-21 - Total 06/14/2001	MW-22 - Dissolved 06/21/2001	MW-22 - Total 06/21/2001
Aluminum	-		1950	40800	20.5U	12000	136B	1520	27.3B	16600
Antimony	3		4.5U	4.5U	4.4U	4.4U	4.5U	4.5U	4.5U	4.5U
Arsenic	25		4.2BJ	16.4J	4.2U	6.2B	4.1U	4.1U	4.1U	10.4
Barium	1,000		54.9B	680	24.5B	138B	10.6B	25.2B	135B	421
Beryllium	3		0.5U	4B	0.5U	0.5U	0.5U	0.5U	0.5U	1.4B
Cadmium	5		0.8U	0.8U	0.9U	0.9U	0.8U	0.8U	0.8U	0.8U
Calcium	-		14200	119000	169000	169000	6570	7040	24200	34000
Chromium	50		9.4B	141	25.9	89.9	1.6B	5.7B	1U	38.5
Cobalt	-		2.4B	64.1	1.6U	16.4B	1.4U	1.7B	1.4U	27B
Copper	200		6.4B	112	3.4B	32.8	2.8B	8.4B	2B	87
Cyanide	200		NA	10U	NA	10U	NA	10U	NA	10U
Hexavalent Chromium	50		NA	10U	NA	20	NA	10U	NA	10U
Iron	300		3520	81100	20.5U	23100	61.8B	2870	66.9B	33500
Lead	25		2.6U	57.6	2U	16.6	2.6U	2.9B	2.6U	33.2
Magnesium	35,000		1460B	48100	22800	25600	2940B	3540B	6820	13300
Manganese	300		108	3360	3.1B	970	3.9B	114	22.4	1630
Mercury	0.7		0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
Nickel	100		9B	168	2.6B	33B	1.5U	4.7B	3.6B	51.2
Potassium	-		75400	108000	21800	25000	1460B	1920B	7110	13500
Selenium	10		4.6UNJ	4.6UNJ	4.9UNJ	4.9UN	5.8	4.6U	4.6U	4.6U
Silver	50		1U	1U	1U	1U	1U	1U	1U	1U
Sodium	20,000		89200	93000	18200	18600	1890B	2100B	30100	34000
Thallium	12.0		9.2U	9.2U	9.1U	9.1U	9.2U	9.2U	9.2UJ	9.2UJ
Vanadium	-		73.7	162	1U	31B	0.9U	4B	0.9U	40.5B
Zinc	2,000		13.6B	306	35	64.7	30.6	51	13.7B	90.8

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bls - Feet below land surface

g/L - Micrograms per liter

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Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: Sample Depth (ft bls): Filtered/Unfiltered: Sample Date:	MW-23 - Dissolved 11/28/2000	MW-23 - Total 11/28/2000	MW-23 - Dissolved 06/14/2001	MW-23 - Total 06/14/2001	MW-23I - Dissolved 07/02/2001	MW-23I - Total 07/02/2001	MW-23R - Dissolved 11/28/2000	MW-23R - Total 11/28/2000
Aluminum	-		39.4B	16100	18.5U	8250	18.5U	960	34.5	17800
Antimony	3		5U	5U	4.5U	4.5U	4.5U	4.5U	5.0U	5.0U
Arsenic	25		2.5U	10.4	4.1U	4.1U	4.1U	4.1U	2.5U	11.1
Barium	1,000		43.8B	218	44.3B	110B	20.2B	49.3B	46.7B	234
Beryllium	3		0.5U	1.4B	0.5U	0.76B	0.5U	0.5U	0.50U	1.6B
Cadmium	5		0.5U	0.5U	0.8U	0.8U	0.8U	0.8U	0.50U	0.50U
Calcium	-		45200	46700	36500	35600	5450	12000	48200	43900
Chromium	50		3.1B	47.1	9.5B	22.2	2.8B	5.2B	29.B	50.0
Cobalt	-		1U	17.7B	1.4U	6B	1.4U	1.9B	1.0U	21.0B
Copper	200		1U	71.7	2.1B	21.3B	3U	4.6B	1.5B	78.8
Cyanide	200		NA	NA	NA	10U	NA	10U	NA	NA
Hexavalent Chromium	50		NA	NA	NA	10U	NA	10U	NA	NA
Iron	300		78B	57500	171	19500	211	2770	73.8B	63200
Lead	25		2U	27.6	2.6U	14	2.6U	2.6U	2.0U	33.1
Magnesium	35,000		10400	15500	9270	11300	2910B	4640B	11200	15200
Manganese	300		11.1B	1440	1.5U	340	26.3	135	14.1B	1760
Mercury	0.7		0.17B	0.14B	0.1U	0.1U	0.1U	0.1U	0.18B	0.13B
Nickel	100		1.5U	46.9	1.9B	19.2B	3U	4.8B	1.5U	50.8
Potassium	-		13000	17500	9660J	11800J	23200J	18100J	14600	18200
Selenium	10		5U	5.0U	5.1J	6.2J	10U	10U	5.0U	5.0U
Silver	50		1U	1U	1U	1U	1U	1U	1.0U	1.0U
Sodium	20,000		17600	16900	12700	12400	99900	103000	18800	16400
Thallium	12.0		6U	6.0U	9.2U	9.2U	15U	10U	6.0U	6.0U
Vanadium	-		1U	56.3	0.9U	21.8B	0.9U	3.1B	1.0U	62.0
Zinc	2,000		7.7B	116	21	79.1	50U	50U	14.3B	122

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J - Estimated value

Dup - Replicate Sample

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AWQSGVs - Ambient Water-Quality Standards and Guidance Values

No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

GeoprobeTM Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

HydropunchTM Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

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Parameter Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation:	MW-24	MW-24	MW-24	MW-24	MW-25	MW-25	MW-26	MW-26
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-
		Filtered/Unfiltered:	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
		Sample Date:	11/28/2000	11/28/2000	06/15/2001	06/15/2001	06/15/2001	06/15/2001	06/19/2001	06/19/2001
Aluminum	-		278	19800	20.5U	3900	138B	26600	18.5U	2090
Antimony	3		5U	5U	4.4U	4.4U	4.4U	4.4U	4.5U	4.5U
Arsenic	25		2.5U	11.1	4.2U	4.2U	4.2U	8.2B	4.1U	4.1U
Barium	1,000		49.4B	265	40.6B	126B	73B	325	42.2B	65.4B
Beryllium	3		0.5U	1.8B	0.5U	0.5U	0.5U	0.99B	1U	0.53B
Cadmium	5		0.5U	0.5U	0.9U	0.9U	0.9U	1.2B	0.8U	0.8U
Calcium	-		105000	106000	87600J	59400J	58900	89900	44400	45400
Chromium	50		122	190	26.3J	15.8J	2.3B	99.5	13.7	22.2
Cobalt	-		1U	24.5B	1.6U	5.3B	1.8B	29.8B	1.4U	3.6B
Copper	200		2.5B	76.4	3.5B	20.9B	4B	65.2	3B	42.7
Cyanide	200		NA	10U	NA	10U	NA	10U	NA	10U
Hexavalent Chromium	50		NA	20	NA	20	NA	10U	NA	10U
Iron	300		571	43600	20.5U	8560	300	51700	15.2U	4820
Lead	25		2U	34.4	2U	5.8	2U	41.6	2.6U	3.5
Magnesium	35,000		18100	20900	8920	17400	15500	13800	22100	19800
Manganese	300		72.3	2670	1.6B	1320	1240	3020	1.5U	181
Mercury	0.7		0.1U	0.18B	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
Nickel	100		2.8B	50	1.3U	14.3B	4.4B	62.8	6.4B	17.7B
Potassium	-		16800	20100	12800J	6380J	4730B	18700	18800	16400
Selenium	10		5U	5U	4.9UN	4.9UN	4.9UN	4.9UN	4.6U	10U
Silver	50		1U	1U	1U	1U	1U	1U	1U	1U
Sodium	20,000		13300	12000	9090J	7710J	9700	9790	111000	92900
Thallium	12.0		6U	6U	9.1U	9.1U	9.1U	9.1U	15UJ	15UJ
Vanadium	-		1U	52.6	1U	12.9B	1U	62.8	0.9U	7.2B
Zinc	2,000		11.7B	110	21.1	41.2	27.3	133	4.4U	16.3B

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No NYSDEC AWQSGV available

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Note:

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Designations

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Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

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Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

	NYSDEC	Designation:	MW-26I	MW-26I	MW-26D	MW-26D	MW-27	MW-27	MW-28	MW-28
	AWQSGVs	Sample Depth (ft bls):	-	-	-	-	-	-	-	-
'arameter	(µg/L)	Filtered/Unfiltered:	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Concentrations in ug/L)		Sample Date:	06/19/2001	06/19/2001	07/09/2001	07/09/2001	06/13/2001	06/13/2001	06/13/2001	06/13/2001
luminum	-		50B	1600	187B	6380	18.5U	3910	18.5U	6740
ntimony	3		4.5U	4.5U	4.5U	4.5U	11.3B	4.5U	4.5U	4.5U
rsenic	25		4.1U	4.1U	4.1U	4.1U	4.1U	4.1U	4.1U	4.1U
arium	1,000		41.9B	51.6B	48.7B	183B	33B	69.3B	37.1B	85.4B
eryllium	3		0.5U	0.5U	0.5U	0.93B	0.5U	0.5U	0.5U	0.58B
admium	5		0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U
alcium	-		33100	30600	16600	46200	27200	28500	44400	45100
hromium	50		1U	9.4B	3.1B	26.3	3.2B	16.5	2.4B	17.7
obalt	-		3.4B	5.2B	1.4U	12.3B	1.4U	5.2B	1.4U	5.3B
opper	200		2.5B	8.4B	7.3B	27.6	1.8U	10.5B	1.9B	14.5B
yanide	200		NA	10U	NA	10U	NA	10U	NA	209
lexavalent Chromium	50		NA	10U	NA	10U	NA	10U	NA	10U
on	300		91.9B	3390	113	14500	19.8B	8180	96.1B	12400
ead	25		2.6U	2.6U	2.6U	16.9	2.6U	5.4	2.6U	8.2
lagnesium	35,000		14100	13400	612B	10300	5570	7200	5100	7080
anganese	300		570	634	4.6B	754	1.5U	311	1.5U	466
ercury	0.7		0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
ickel	100		3.1B	9.5B	2.4B	31.3B	1.5U	11.2B	1.5B	12.4B
otassium	-		48200	35300	74300	83500	2680B	4150B	4550B	6470
elenium	10		4.6U	4.6U	4.6U	4.6U	4.6U	4.6U	4.6U	4.6U
ilver	50		1U	1U	1U	1U	3.4B	1U	1U	1U
odium	20,000		150000	140000	65400	60100	2010B	2260B	4260B	4620B
hallium	12.0		15UJ	9.2UJ	9.2UJ	9.2UJ	9.2U	9.2U	9.2U	9.2U
anadium	-		3.9B	8.6B	27.4B	47.2B	0.9U	10.4B	0.9U	17B
inc	2,000		4.4U	28.7B	23.1B	83.9	27	85	21	110

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Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Depth (ft bls): / Filtered/Unfiltered: / Sample Date:	MW-29S - Dissolved 06/29/2001	MW-29S - Total 06/29/2001	MW-29I - Dissolved 07/02/2001	MW-29I - Total 07/02/2001	MW-29D - Dissolved 07/19/2001	MW-29D - Total 07/19/2001	MW-30S - Dissolved 06/18/2001	MW-30S - Total 06/18/2001
Aluminum	-		66.7B	11100	18.5U	1780	47.8B	626	20.5U	5490
Antimony	3		4.5U	4.5U	4.5U	4.5U	4.4U	4.4U	4.4U	4.4U
Arsenic	25		4.1U	4.1U	4.1U	4.1U	7.6B	4.2U	4.2U	4.2U
Barium	1,000		34.8B	120B	30.9B	46.8B	18.9B	28B	34.2B	107B
Beryllium	3		0.5U	0.75B	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Cadmium	5		0.8U	0.8U	0.8U	0.8U	0.9U	0.9U	0.9U	0.9U
Calcium	-		432000J	363000J	13100	14600	4820B	6420	82600	83500
Chromium	50		60.3	91.2	1U	9B	0.8U	1.7B	5.1B	22.4
Cobalt	-		1.4U	35.9B	1.4U	2.8B	1.6U	1.6U	1.6U	12.7B
Copper	200		1.8U	38.4	3U	6.4B	1.6U	4.4B	1.6U	14B
Cyanide	200		NA	10UJ	NA	10U	NA	10U	NA	10U
Hexavalent Chromium	50		NA	80	NA	10U	NA	10U	NA	10U
Iron	300		56.5B	20300	50U	3770	20.5U	1010	20.5U	11000
Lead	25		2.6U	20	2.6U	3.2	2U	2U	2U	10.3
Magnesium	35,000		71400	63300	3710B	4290B	3400B	3690B	27600	27500
Manganese	300		151	1910	599	648	2.7B	21.2	174	816
Mercury	0.7		0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
Nickel	100		28.7B	73.5	3U	8.7B	1.3U	2.9B	9.3B	33.7B
Potassium	-		26800	26400	6080	6710	27600J	26600J	7750J	9510J
Selenium	10		4.6UNJ	4.6UNJ	4.6U	4.6U	4.9U	4.9U	4.9U	4.9U
Silver	50		1U	1U	1U	1U	1U	2B	1U	1U
Sodium	20,000		20900J	16300J	85100	81600	48200	47300	30800	31700
Thallium	12.0		9.2U	15U	15U	15U	9.1UJ	9.1UJ	9.1U	9.1U
Vanadium	-		0.9U	29.7B	0.9U	5.4B	1.8B	3.3B	1U	15.5B
Zinc	2,000		15.3B	84.5	50U	50U	15.5B	53.9	5.4B	55.5

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AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe™ Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I or S designation indicates a shallow well

Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation:	MW-30I	MW-30I	MW-31S	MW-31S	MW-31I	MW-31I	REP-2	REP-2
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-
		Filtered/Unfiltered:	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
		Sample Date:	06/28/2001	06/28/2001	06/29/2001	06/29/2001	07/11/2001	07/11/2001	06/26/2001	06/26/2001
Aluminum	-		18.5U	457	37.3B	13500	20.5U	522	334	1140
Antimony	3		4.5U	4.5U	4.5U	4.5U	4.4U	4.4U	4.5U	4.5U
Arsenic	25		4.1U	4.1U	4.1U	4.1U	4.2U	4.2U	4.1U	4.1U
Barium	1,000		51.1B	58.2B	28.3B	127B	56.2B	56B	68.3B	83.2B
Beryllium	3		0.5U	0.5U	0.5U	0.83B	0.5U	0.5U	0.5U	0.5U
Cadmium	5		0.8U	0.8U	0.8U	0.8U	0.9U	0.9U	0.8U	0.8U
Calcium	-		25900	31300	256000	238000	48200	45400	75700	82600
Chromium	50		1U	2.9B	**154**	**189**	0.8U	1.8B	1.2B	11
Cobalt	-		2.2B	2.9B	2B	25.8B	5.9B	5.8B	3.9B	5.8B
Copper	200		2.4B	3.7B	1.8U	31.5	1.6U	4.4B	1.8U	4.2B
Cyanide	200		NA	10UJ	NA	10UJ	NA	10U	NA	10UJ
Hexavalent Chromium	50		NA	10U	NA	**180**	NA	10U	NA	10U
Iron	300		15.2U	**847**	59.5B	**24000**	**683**	**1710**	**8100**	**11500**
Lead	25		2.6U	2.6U	2.6U	19	2U	2U	2.6U	2.6U
Magnesium	35,000		18500	20400	26500	28300	16200	15000	**35700**	**38500**
Manganese	300		**871**	**1570**	**1060**	**2010**	**1720**	**1620**	**2510**	**2760**
Mercury	0.7		0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
Nickel	100		6.6B	9.9B	11.5B	48.3	7B	8.3B	4.3B	11.5B
Potassium	-		7130	6590	23200	25400	11500	10700	18300	20700
Selenium	10		4.6UNJ	4.6UNJ	4.6UNJ	4.6UNJ	4.9U	4.9UN	4.6UNJ	4.6UNJ
Silver	50		1U	1U	1U	1U	1U	1U	1U	1U
Sodium	20,000		**58400**	**55300**	**25500**	**23300**	**98600**	**94400**	**278000**	**304000**
Thallium	12.0		15U	9.2U	9.2U	15U	9.1UJ	9.1UJ	9.2U	9.2U
Vanadium	-		0.9U	1.3B	0.9U	36.6B	1U	1B	0.9U	3B
Zinc	2,000		16.4B	23.4B	11.5B	91.9	6.5B	8.9B	35.8	40.3

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- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

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Designations

Geoprobe™ Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

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Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation:	MW-31D	MW-31D	MW-32S	MW-32S	MW-33S	MW-33S	MW-33I	MW-33I
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-
		Filtered/Unfiltered:	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
		Sample Date:	07/16/2001	07/16/2001	06/21/2001	06/21/2001	06/26/2001	06/26/2001	06/26/2001	06/26/2001
Aluminum	-		282	9560	18.5U	29800	256	2900	215	821
Antimony	3		4.4U	6.3B	4.5U	4.5U	4.5U	4.5U	4.5U	4.5U
Arsenic	25		4.2U	5B	4.1U	9.3B	4.1U	4.4B	4.1U	4.1U
Barium	1,000		57.3B	162B	69.3B	848	42.1B	68.9B	73.5B	79.5B
Beryllium	3		0.5U	1.2B	0.5U	3.6B	0.5U	0.5U	0.5U	0.5U
Cadmium	5		0.9U	0.9U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U
Calcium	-		38800	45400	29700	48600	270000	263000	79200	79000
Chromium	50		1.3B	25.7	1U	56.1	3.8B	20.1	1.7B	4.6B
Cobalt	-		1.6U	10.8B	1.4U	82.1	2.7B	7B	4.1B	4.9B
Copper	200		1.6U	22.7B	1.8U	77.7	1.8U	6.6B	1.8U	2.8B
Cyanide	200		NA	10U	NA	10U	NA	10UJ	NA	10UJ
Hexavalent Chromium	50		NA	10U	NA	10U	NA	10U	NA	10U
Iron	300		363	18300	26.6B	41000	116	5430	8340	9990
Lead	25		2U	9.8	2.6U	149	2.6U	8.2	2.6U	2.6U
Magnesium	35,000		5240	11200	7850	18800	14200	14800	37100	37300
Manganese	300		81.6	640	389	5460	9310	9300	2660	2660
Mercury	0.7		0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
Nickel	100		1.3U	25.4B	3.6B	73.6	6B	15.3B	2.8B	5.4B
Potassium	-		11600J	16100J	6120J	14900J	15800	16500	19300	19900
Selenium	10		4.9U	4.9U	4.6U	4.6U	4.6UNJ	4.6UNJ	4.6UNJ	4.6UNJ
Silver	50		1U	1U	1U	1U	1U	1U	1U	1U
Sodium	20,000		37600	38500	8550J	5980J	18500	17900	295000J	206000J
Thallium	12.0		9.1UJ	9.1UJ	9.2U	9.2U	9.2U	9.2U	9.2U	9.2U
Vanadium	-		5.1B	30.9B	0.9U	61.9	0.9U	7.8B	0.9U	2.5B
Zinc	2,000		17.5B	80.7	20.2B	392J	15.6B	70.1	21.8B	33.2

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- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

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Designations

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Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

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Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation:	MW-33D	MW-33D	REP-3	REP-3	MW-34S	MW-34S	MW-34I	MW-34I
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-
		Filtered/Unfiltered:	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
		Sample Date:	07/13/2001	07/13/2001	07/13/2001	07/13/2001	06/29/2001	06/29/2001	07/06/2001	07/06/2001
Aluminum	-		351	12400	152B	6730	43.7B	9590	50U	1530
Antimony	3		4.4U	4.4U	4.4U	4.4U	4.5U	4.5U	4.5U	4.5U
Arsenic	25		5.6B	4.8B	5.7B	11	4.1U	4.1U	4.1U	4.1U
Barium	1,000		52.5B	218	50.2B	174B	59.2B	218	82.2B	188B
Beryllium	3		0.5U	1.5B	0.5U	1.2B	0.5U	0.59B	0.5U	0.5U
Cadmium	5		0.9U	0.9U	0.9U	0.9U	0.8U	0.8U	0.8U	0.8U
Calcium	-		32200	57700	30400	50900	29200	30700	30000	54900
Chromium	50		0.8U	30.8	0.8U	16.8	1.3B	32.2	5.6B	11.3
Cobalt	-		1.6U	14.4B	1.6U	11.7B	1.4U	17.9B	1.4U	2.8B
Copper	200		3.1B	85.2	3B	38.6	1.8U	25.2	5U	5.8B
Cyanide	200		NA	10U	NA	10U	NA	10UJ	NA	10U
Hexavalent Chromium	50		NA	10U	NA	10U	NA	10U	NA	10U
Iron	300		65.5B	**23400**	90.4B	**15600**	28B	**25600**	19.8B	**3130**
Lead	25		2.6B	**37.3**	2U	16.3	2.6U	16.9	2.6U	2.6U
Magnesium	35,000		4560B	15100	4410B	13400	11700	15500	4570B	5670
Manganese	300		72.6	**1070**	67.4	**1000**	7.6B	**1340**	9.1B	**1280**
Mercury	0.7		0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
Nickel	100		1.3U	32.7B	1.3U	23.3B	1.5B	37.4B	3.1B	7.8B
Potassium	-		15400	20500	15200	17500	13400	18200	35400	42100
Selenium	10		4.9U	4.9U	4.9U	4.9U	4.6UNJ	4.6UNJ	4.6U	4.6U
Silver	50		1U	1U	1U	1U	1U	1U	1U	1U
Sodium	20,000		**35700**	**37200**	**35000**	**35000**	**69400**	**70500**	**94700**	**102000**
Thallium	12.0		9.1UJ	9.1UJ	9.1UJ	9.1UJ	9.2U	9.2U	9.2U	9.2U
Vanadium	-		1.2B	37B	1.5B	24.3B	0.9U	31.9B	2B	6B
Zinc	2,000		20.5B	110	11.6B	77.2	19.4B	130	20U	27.4B

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Note:

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Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation:	MW-34D	MW-34D	MW-35S	MW-35S	MW-35I	MW-35I	MW-35D	MW-35D
		Sample Depth (ft bls):	-	-	-	-	-	-	-	-
		Filtered/Unfiltered:	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
		Sample Date:	07/19/2001	07/19/2001	06/28/2001	06/28/2001	06/28/2001	06/28/2001	07/19/2001	07/19/2001
Aluminum	-		121B	47000	18.5U	2470	18.5U	368	68B	8760
Antimony	3		4.4U	4.4U	4.5U	4.5U	4.5U	4.5U	4.4U	4.4U
Arsenic	25		7.7B	23.8	4.1U	4.1U	4.1U	4.1U	7.8B	8.6B
Barium	1,000		58.5B	761	27.2B	85.7B	61B	67.1B	51.8B	180B
Beryllium	3		0.5U	5.5	0.5U	0.5U	0.5U	0.5U	0.5U	1.5B
Cadmium	5		0.9U	0.9U	0.8U	0.8U	0.8U	0.8U	0.9U	0.9U
Calcium	-		31700	152000	27200	30900	45700	48100	40200	49700
Chromium	50		0.8U	106	5.8B	14.2	1U	2.1B	0.8U	20.6
Cobalt	-		1.6U	59.7	1.4U	12.3B	3B	3.8B	1.6U	12.1B
Copper	200		1.6U	170	2.4B	10.4B	2B	3.4B	1.6U	33.1
Cyanide	200		NA	10U	NA	10UJ	NA	10UJ	NA	10U
Hexavalent Chromium	50		NA	10U	NA	10U	NA	10U	NA	10U
Iron	300		108	90600	24.5B	**6180**	**402**	**1310**	32.8B	**18000**
Lead	25		2U	**69.5**	2.6U	8	2.6U	2.6U	2U	13.1
Magnesium	35,000		5240	**52600**	5330	6470	23800	25000	5150	12100
Manganese	300		55.4	4000	72.2	**777**	**4680**	**5000**	81.3	**793**
Mercury	0.7		0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
Nickel	100		1.3U	129	3.3B	17.2B	7.9B	9.6B	1.3U	24.6B
Potassium	-		14900J	54800J	3930B	5160	8520	9230	11300J	15500J
Selenium	10		4.9U	4.9U	4.6UNJ	4.6UNJ	4.6UNJ	4.6UNJ	4.9U	4.9U
Silver	50		1U	1U	1U	1U	1U	1U	1U	1U
Sodium	20,000		**44400**	**89800**	**24300**	**23500**	**113000**	**118000**	**39400**	**38500**
Thallium	12.0		9.1UJ	9.1UJ	9.2U	15U	15U	9.2U	9.1UJ	9.1UJ
Vanadium	-		2.8B	147	0.9U	8.2B	0.9U	1.5B	1U	29.6B
Zinc	2,000		13B	353	12.3B	29.4B	12.8B	16.6B	22B	82.5

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Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Depth (ft bls): / Filtered/Unfiltered: / Sample Date:	SB-31 16-17 Total 02/28/2001	SB-31 16-17 Dissolved 02/28/2001	SB-31 18-20 Total 02/28/2001	SB-31 18-20 Dissolved 02/28/2001	SB-31 28-30 Total 02/28/2001	SB-31 28-30 Dissolved 02/28/2001	SB-31 38-40 Total 02/28/2001	SB-31 38-40 Dissolved 02/28/2001
Aluminum	-		NA	NA	NA	NA	NA	NA	NA	NA
Antimony	3		NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	5		NA	NA	NA	NA	NA	NA	NA	NA
Calcium	-		NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		379	0.59B	196	0.44B	428	0.30U	1550	0.56B
Cobalt	-		NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	200		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.7		NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100		NA	NA	NA	NA	NA	NA	NA	NA
Potassium	-		NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA
Thallium	12.0		NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	-		NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000		NA	NA	NA	NA	NA	NA	NA	NA

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Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Depth (ft bls): / Filtered/Unfiltered: / Sample Date:	SB-31 48-50 Total 02/28/2001	SB-31 48-50 Dissolved 02/28/2001	SB-32 14-16 Total 2/26/01	SB-32 14-16 Dissolved 2/26/01	SB-32 18-20 Total 2/26/01	SB-32 18-20 Dissolved 2/26/01	SB-32 28-30 Total 2/26/01	SB-32 28-30 Dissolved 2/26/01
Aluminum	-		NA	NA	NA	NA	NA	NA	NA	NA
Antimony	3		NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	5		NA	NA	NA	NA	NA	NA	NA	NA
Calcium	-		NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		292	0.81B	77.4	1.1B	527	0.5U	818	1.1B
Cobalt	-		NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	200		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.7		NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100		NA	NA	NA	NA	NA	NA	NA	NA
Potassium	-		NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA
Thallium	12.0		NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	-		NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000		NA	NA	NA	NA	NA	NA	NA	NA

U - Indicates that the compound was analyzed for but not detected

ft bls - Feet below land surface

ug/L - Micrograms per liter

B - Estimated value

Rep - Replicate Sample

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe™ Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I or S designation indicates a shallow well

Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation:	SB-32	SB-32	SB-32	SB-32	SB-40	SB-40	SB-40	SB-40
		Sample Depth (ft bls):	38-40	38-40	48-50	48-50	14-16	14-16	18-20	18-20
		Filtered/Unfiltered:	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
		Sample Date:	2/26/01	2/26/01	2/26/01	2/26/01	3/13/01	3/13/01	3/13/01	3/13/01
Aluminum	-		NA	NA	NA	NA	NA	NA	NA	NA
Antimony	3		NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	5		NA	NA	NA	NA	NA	NA	NA	NA
Calcium	-		NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		1020	0.70B	659	0.30U	168	40.2	667	2U
Cobalt	-		NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	200		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.7		NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100		NA	NA	NA	NA	NA	NA	NA	NA
Potassium	-		NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA
Thallium	12.0		NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	-		NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000		NA	NA	NA	NA	NA	NA	NA	NA

J - Indicates that the compound was analyzed for but not detected

ft bls - Feet below land surface

ug/L - Micrograms per liter

B - Estimated value

Rep - Replicate Sample

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe™ Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I or S designation indicates a shallow well

Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Depth (ft bls): / Filtered/Unfiltered: / Sample Date:	SB-40 28-30 Total 3/13/01	SB-40 28-30 Dissolved 3/13/01	SB-40 38-40 Total 3/13/01	SB-40 38-40 Dissolved 3/13/01	SB-40 48-50 Total 3/13/01	SB-40 48-50 Dissolved 3/13/01	SB-42 12-14 Total 3/12/01	SB-42 12-14 Dissolved 3/12/01
Aluminum	-		NA	NA	NA	NA	NA	NA	NA	NA
Antimony	3		NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	5		NA	NA	NA	NA	NA	NA	NA	NA
Calcium	-		NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		**171**	5.1B	600	4.2B	**692**	2U	**234**	7.6B
Cobalt	-		NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	200		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.7		NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100		NA	NA	NA	NA	NA	NA	NA	NA
Potassium	-		NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA
Thallium	12.0		NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	-		NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000		NA	NA	NA	NA	NA	NA	NA	NA

U - Indicates that the compound was analyzed for but not detected

ft bls - Feet below land surface

µg/L - Micrograms per liter

B - Estimated value

Rep - Replicate Sample

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe[tm] Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch[TM] Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

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Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation:	SB-42	SB-42	SB-42	SB-42	SB-42	SB-42	SB-42	SB-42
		Sample Depth (ft bls):	18-20	18-20	28-30	28-30	38-40	38-40	48-50	48-50
		Filtered/Unfiltered:	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
		Sample Date:	3/12/01	3/12/01	3/12/01	3/12/01	3/12/01	3/12/01	3/12/01	3/12/01
Aluminum	-		NA	NA	NA	NA	NA	NA	NA	NA
Antimony	3		NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	5		NA	NA	NA	NA	NA	NA	NA	NA
Calcium	-		NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		**64.7**	0.30U	**89.5**	0.30U	**201**	2U	**97.8**	2U
Cobalt	-		NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	200		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.7		NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100		NA	NA	NA	NA	NA	NA	NA	NA
Potassium	-		NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA
Thallium	12.0		NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	-		NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000		NA	NA	NA	NA	NA	NA	NA	NA

U - Indicates that the compound was analyzed for but not detected

ft bls - Feet below land surface

µg/L - Micrograms per liter

B - Estimated value

Rep - Replicate Sample

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe™ Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

D - Deep

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Monitoring Well without a D, I or S designation indicates a shallow well

Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Depth (ft bls): / Filtered/Unfiltered: / Sample Date:	SB-45 14-16 Total 4/11/01	SB-45 14-16 Dissolved 4/11/01	SB-45 18-20 Total 4/11/01	SB-45 18-20 Dissolved 4/11/01	SB-45 28-30 Total 4/11/01	SB-45 28-30 Dissolved 4/11/01	SB-45 38-40 Total 4/11/01	SB-45 38-40 Dissolved 4/11/01
Aluminum	-		NA	NA	NA	NA	NA	NA	NA	NA
Antimony	3		NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	5		NA	NA	NA	NA	NA	NA	NA	NA
Calcium	-		NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		**232**	0.68B	**362**	2U	**256**	2U	**469**	2U
Cobalt	-		NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	200		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.7		NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100		NA	NA	NA	NA	NA	NA	NA	NA
Potassium	-		NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA
Thallium	12.0		NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	-		NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000		NA	NA	NA	NA	NA	NA	NA	NA

U - Indicates that the compound was analyzed for but not detected

ft bls - Feet below land surface

µg/L - Micrograms per liter

B - Estimated value

Rep - Replicate Sample

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe™ Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

D - Deep

I - Intermediate

S - Shallow

Monitoring Well without a D, I or S designation indicates a shallow well

Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: / Sample Depth (ft bls): / Filtered/Unfiltered: / Sample Date:	SB-45 48-50 Total 4/11/01	SB-45 48-50 Dissolved 4/11/01	SB-46 12-14 Total 3/12/01	SB-46 12-14 Dissolved 3/12/01	SB-46 18-20 Total 3/12/01	SB-46 18-20 Dissolved 3/12/01	SB-46 28-30 Total 3/12/01	SB-46 28-30 Dissolved 3/12/01
Aluminum	-		NA	NA	NA	NA	NA	NA	NA	NA
Antimony	3		NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	5		NA	NA	NA	NA	NA	NA	NA	NA
Calcium	-		NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		**218**	2U	**107**	2U	**253**	2U	**273**	2U
Cobalt	-		NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	200		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.7		NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100		NA	NA	NA	NA	NA	NA	NA	NA
Potassium	-		NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA
Thallium	12.0		NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	-		NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000		NA	NA	NA	NA	NA	NA	NA	NA

J - Indicates that the compound was analyzed for but not detected

ft bls - Feet below land surface

ug/L - Micrograms per liter

B - Estimated value

Rep - Replicate Sample

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe™ Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

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Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

	NYSDEC	Designation:	SB-46	SB-46	SB-46	SB-46	SB-73	SB-73	SB-74	SB-74
	AWQSGVs	Sample Depth (ft bls):	38-40	38-40	48-50	48-50	11-13	11-13	11-13	11-13
Parameter	(µg/L)	Filtered/Unfiltered:	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Concentrations in ug/L)		Sample Date:	3/12/01	3/12/01	3/12/01	3/12/01	4/24/01	4/24/01	4/24/01	4/24/01
Aluminum	-		NA	NA	NA	NA	NA	NA	NA	NA
Antimony	3		NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	5		NA	NA	NA	NA	NA	NA	NA	NA
Calcium	-		NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		**666**	2U	**188**	2U	NA	NA	NA	NA
Cobalt	-		NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	200		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.7		NA	NA	NA	NA	0.10U	0.10U	0.10U	0.10U
Nickel	100		NA	NA	NA	NA	NA	NA	NA	NA
Potassium	-		NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA
Thallium	12.0		NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	-		NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000		NA	NA	NA	NA	NA	NA	NA	NA

J - Indicates that the compound was analyzed for but not detected

bls - Feet below land surface

g/L - Micrograms per liter

- Estimated value

ep - Replicate Sample

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

No NYSDEC AWQSGV available

IA - Not analyzed

Note:

otal - Unfiltered groundwater sample

issolved - Filtered groundwater sample

old data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

eoprobe™ Groundwater Samples - GW-16

onitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

ydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

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onitoring Well without a D, I or S designation indicates a shallow well

Table 8. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (µg/L)	Designation: Sample Depth (ft bls): Filtered/Unfiltered: Sample Date:	SB-74 21-23 Total 4/24/01	SB-74 21-23 Dissolved 4/24/01	SB-74 31-33 Total 4/24/01	SB-74 31-33 Dissolved 4/24/01
Aluminum	-		NA	NA	NA	NA
Antimony	3		NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA
Cadmium	5		NA	NA	NA	NA
Calcium	-		NA	NA	NA	NA
Chromium	50		NA	NA	NA	NA
Cobalt	-		NA	NA	NA	NA
Copper	200		NA	NA	NA	NA
Cyanide	200		NA	NA	NA	NA
Hexavalent Chromium	50		NA	NA	NA	NA
Iron	300		NA	NA	NA	NA
Lead	25		NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA
Mercury	0.7		0.10U	0.10U	0.10U	0.10U
Nickel	100		NA	NA	NA	NA
Potassium	-		NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA
Silver	50		NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA
Thallium	12.0		NA	NA	NA	NA
Vanadium	-		NA	NA	NA	NA
Zinc	2,000		NA	NA	NA	NA

U - Indicates that the compound was analyzed for but not detected

ft bls - Feet below land surface

µg/L - Micrograms per liter

B - Estimated value

Rep - Replicate Sample

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- No NYSDEC AWQSGV available

NA - Not analyzed

Note:

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Designations

Geoprobe™ Groundwater Samples - GW-16

Monitoring Well Groundwater Samples - MW-1, MW-2, MW-21 through MW-35

Hydropunch™ Groundwater Samples - SB-31, SB-32, SB-40, SB-52, SB-45, SB-46, SB-73 and SB-74

D - Deep

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Monitoring Well without a D, I or S designation indicates a shallow well

Table 9. Inventory of Soil Borings Drilled and Laboratory Analysis Performed During the Site Investigation, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Soil Boring Designation	Area of Concern	Rationale	Total Depth of Soil Boring (ft bls)	Sample Interval Submitted for Lab Analysis (ft bls)	Laboratory Analysis	Drilling Method
SB-1	Former Plating Area	Delineation at Former Plating Area	10	8-10	VOCs	GP
SB-2	Former Plating Area	Delineation at Former Plating Area	10	8-10	VOCs, TAL Metals	GP
SB-3	Former Plating Area	Delineation at Former Plating Area	8	6-8	VOCs, TAL Metals	GP
SB-4	Former Plating Area	Delineate vertical extent of black stained material	22	20-22	TPH	GP
SB-5	Former Plating Area at Former Test Pit TP-6A	Delineate lateral and vertical extent of area with elevated TPH concentrations	22	20-22	TPH	GP
SB-6	Former Plating Area at Former Test Pit TP-6A	Delineate lateral and vertical extent of area with elevated TPH concentrations	22	14-16 and 20-22	TPH	GP
SB-7	Former Plating Area at Former Test Pit TP-6	Delineation of vertical extent of blue-gray/green stained material and to verify absence of DNAPL	28	15-17	CVOCs, TAL Metals	GP
SB-8, SB-9, SB-10	Former UST Area (Former Test Pit TP-9)	Delineation of lateral extent of BNs at former UST area	12 12 10	6-8	BNs	GP
SB-11, SB-13	Former Leaching Field	Verify that no residual impacts exist from former dry wells	12	8-10, 6-8	VOCs, SVOCs, CN TAL Metals	GP
SB-12	Former Leaching Field	Verify no residual impacts exist from former dry wells and to verify the absence of DNAPL	12	6-8	VOCs, SVOCs, CN TAL Metals	GP
SB-14, SB-16	Former Building Footprint	Characterize soil quality	12	6-8	VOCs, SVOCs, CN TAL Metals	GP
SB-15, SB-17, SB-19	Former Building Footprint	Characterize soil quality	12	0-2	VOCs, SVOCs, CN TAL Metals	GP
SB-18, SB-21, SB-22	Former Building Footprint	Characterize soil quality	12	8-10	VOCs, SVOCs, CN TAL Metals	GP
SB-20	Former Building Footprint	Characterize soil quality	12	4-6	VOCs, SVOCs, CN TAL Metals	GP
SB-23	Site Wide	Verify the absence of DNAPL	10	0-2	VOCs, SVOCs, TAL Metals	GP

Table 9. Inventory of Soil Borings Drilled and Laboratory Analysis Performed During the Site Investigation, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Soil Boring Designation	Area of Concern	Rationale	Total Depth of Soil Boring (ft bls)	Sample Interval Submitted for Lab Analysis (ft bls)	Laboratory Analysis	Drilling Method
SB-24	Site Wide	Verify the absence of DNAPL	12	8-10	VOCs, SVOCs, TAL Metals	GP
SB-25 thru SB-30	Site Wide	Characterize soil quality for exposure assessment	6	0-2 and 4-6	VOCs, SVOCs, TAL Metals	GP
SB-31 thru SB-34, SB-39 thru SB-50, SB-53 thru SB-66, SB-68 and SB-70	Site Wide	Hydropunch™ water-quality samples collected (see Table 10) No soil samples were collected for laboratory analysis from these soil borings	N/A	N/A	N/A	HSA
SB-35	Site Wide	Characterize soil quality	12	2-4	VOCs	HSA
SB-36, SB-37	Site Wide	Characterize soil quality	14	10-12	VOCs	HSA
SB-38	Site Wide	Characterize soil quality	12	8-10	VOCs	HSA
SB-51, SB-52	Site Wide	Determine subsurface geology	75	N/A	N/A	HSA
SB-67	Site Wide	Characterize soil quality	103	0-2	VOCs	HSA
SB-69	Site Wide	Characterize soil quality	53	2-4	VOCs	HSA
SB-71 thru SB-73	Site Wide	Characterize soil quality	18 18 13	10-12	VOCs, SVOCs, CN TAL Metals	HSA

ft bls - Feet Below Land Surface
N/A - Not Applicable
GP - Geoprobe ™
HSA - Hollow Stem Auger
VOCs - Volatile Organic Compounds
CVOCs - Chlorinated Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
CN - Cyanide
BNs - Base Neutral Compounds
TPH - Total Petroleum Hydrocarbons
TAL - Target Analyte List
DNAPL - Dense Non-Aqueous Phase Liquid
UST - Underground Storage Tank

Table 10. Inventory of Groundwater Samples Collected and Laboratory Analysis Performed During the Site Investigation, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Geoprobe™, Hydropunch™ or Monitoring Well Designation	Area of Concern	Rationale	Total Depth of Geoprobe™ Point, Hydropunch™ Point or Monitoring Well (ft bls)	Monitoring Well Screened Interval (ft bls)	Laboratory Analysis	Drilling / Installation Method
GW-1 thru GW-11	Site Wide	Characterize groundwater quality	10	N/A	CVOCs	GP
GW-12 thru GW-15	Former Geoprobe™ Point GW-2	Delineate CVOC concentrations at GW-2	10	N/A	CVOCs	GP
GW-16	Former Leaching Field	Confirm absence of groundwater impacts at former leaching field	10	N/A	VOCs and TAL Metals (Total and Dissolved)	GP
SB-31	Site Wide	Delineate lateral and vertical extent of CVOCs above the NYSDEC AWQSGVs	50	N/A	CVOCs, Cr+6, Cl, TDS	HSA
SB-32, SB-40, and SB-45	Site Wide	Delineate lateral and vertical extent of VOCs above the NYSDEC AWQSGVs	SB-32, SB-45 113 SB-40 103	N/A	VOCs*, Cr+6, Cl, TDS	HSA
SB-33, SB-34, SB-36, SB-37, SB-43, SB-48 thru SB-50, SB-53 thru SB-63, SB-65, SB-69, and SB-70	Site Wide	Delineate lateral and vertical extent of VOCs above the NYSDEC AWQSGVs	SB-33, SB-34, SB-43, SB-49, SB-54 thru SB-62 50 SB-36, SB-37,SB-48, SB-53 30 SB-63 40 SB-65, SB-69 53 SB-70 23	N/A	CVOCs	HSA
SB-35, SB-38, SB-39, and SB-47	Site Wide	Delineate lateral and vertical extent of VOCs above the NYSDEC AWQSGVs	50	N/A	CVOCs, Cl, TDS	HSA
SB-41	Site Wide	Delineate lateral and vertical extent of VOCs above the NYSDEC AWQSGVs	113	N/A	VOCs*, Cl, TDS	HSA
SB-42 and SB-46	Site Wide	Delineate lateral and vertical extent of VOCs above the NYSDEC AWQSGVs	50	N/A	CVOCs, Cr+6	HSA

Table 10. Inventory of Groundwater Samples Collected and Laboratory Analysis Performed During the Site Investigation, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Geoprobe™, Hydropunch™ or Monitoring Well Designation	Area of Concern	Rationale	Total Depth of Geoprobe™ Point, Hydropunch™ Point or Monitoring Well (ft bls)	Monitoring Well Screened Interval (ft bls)	Laboratory Analysis	Drilling / Installation Method
SB-44, SB-64, SB-66 thru SB-68, SB-71, SB-72, and SB-74	Site Wide	Delineate lateral and vertical extent of VOCs above the NYSDEC AWQSGVs	SB-44 73 SB-64 63 SB-66, SB-67 103 SB-68 113 SB-71 14 SB-72 20 SB-74 33	N/A	VOCs*	HSA
SB-73	Test Pit 29	Characterize groundwater based on observations of a sheen	13	N/A	VOCs	HSA
SB-74	Manhole at Test Pit 23	Characterize groundwater quality for mercury	33	N/A	VOCs, Hg	HSA
SB-75 and SB-76	Manhole at Test Pit 23	Characterize groundwater quality downgradient from manhole containing mercury	33	N/A	Not Analyzed	HSA
MW-1, MW-2, MW-21, MW-22, MW-22, MW-25, MW-27 and MW-28	Site Wide	Characterize groundwater quality	18	8-18	VOCs, CVOCs, SVOCs, CN, TAL Metals, PCBs, Cl, TDS, NAT	HSA
MW-23, MW-24	Site Wide	Characterize groundwater quality	18	8-18	VOCs, CVOCs, SVOCs, CN, TAL Metals, PCBs, Cl, TDS, NAT	HSA
MW-26	Site Wide	Characterize groundwater quality	18	8-18	VOCs, CVOCs, SVOCs, CN, TAL Metals, PCBs, Cl, TDS, NAT, BNs	HSA
MW-29S, MW-30S, MW-31S, MW-33S, MW-34S, MW-35S	Site Wide	Characterize groundwater quality	18	8-28	VOCs, SVOCs, CN, TAL Metals, PCBs	HSA
MW-32S	Site Wide	Characterize groundwater quality	28	8-28	VOCs, SVOCs, CN, TAL Metals, PCBs	HSA

Table 10. Inventory of Groundwater Samples Collected and Laboratory Analysis Performed During the Site Investigation, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Geoprobe™, Hydropunch™ or Monitoring Well Designation	Area of Concern	Rationale	Total Depth of Geoprobe™ Point, Hydropunch™ Point or Monitoring Well (ft bls)	Monitoring Well Screened Interval (ft bls)	Laboratory Analysis	Drilling / Installation Method
MW-2I, MW-23I, MW-26I, MW-29I, MW-30I, MW-31I, MW-33I, MW-34I, MW-35I	Site Wide	Characterize groundwater quality	50	30-50	VOCs, SVOCs, CN, TAL Metals, PCBs	HSA
MW-2D, MW-26D, MW-29D, MW-31D, MW-33D, MW-34D, MW-35D	Site Wide	Characterize groundwater quality	125	105-125	VOCs, SVOCs, CN, TAL Metals, PCBs	HSA

ft bls - Feet Below Land Surface
N/A - Not Applicable
GP - Geoprobe™
HSA - Hollow Stem Auger
CVOCs - Chlorinated Volatile Organic Compounds
VOCs - Volatile Organic Compounds
TAL - Target Analyte List
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
SVOCs - Semivolatile Organic Compounds
BNs - Base Neutral Compounds
PCBs - Polychlorinated Biphenyls
CN - Cyanide
Cr+6 - Hexavalent Chromium
Hg - Mercury
Cl - Chloride
TDS - Total Dissolved Solids
* - Benzene, Toluene, Ethylbenzene and Xylenes analyzed in samples at depths greater than 50 ft bls
NAT - Natural Attenuation Paramenters - dissolved oxygen, carbon dioxide, alkalinity, sulfate, nitrite, dissolved iron/reduced iron, dissolved manganese/reduced manganese, ethane, ethene

Note:
Monitoring Well MW-3 was dry

Designations:
Geoprobe™ GW-1 through GW-16
Hydropunch™ SB-31 through SB-76
Monitoring Wells MW-1, MW-2, MW-2I, MW-2D,MW-21, MW-22,MW-23, MW-23I, MW-24, MW-25, MW-26, MW-26I, MW-26D, MW-27, MW-28, MW-29S, MW-29I, MW-29D, MW-30S, MW-30I, MW-31S, MW-31I, MW-31D, MW-32S, MW-33S, MW-33I, MW-33D, MW-34S, MW-34I, MW-34D, MW-35S, MW-35I, and MW-35D

D - Deep
I - Intermediate
S - Shallow
Monitoring wells without D, I, S designation indicate shallow well

Table 11. Water-Level Elevations Determined on November 28, 2000, December 4, 2000, July 20, 2001, and August 1, 2001, Former Thypin Steel Inc., Facility, Manorhaven, New York.

Monitoring Well Designation	Date of Measurement	Measuring Point Elevation (1)	Low Tide DTW (ft bls)	Low Tide Elevation (1)	High Tide DTW (ft bls)	High Tide Elevation (1)
MW-1	11/28/00	14.74	11.06	3.68	11.06	3.68
MW-1	12/4/00	14.74	11.06	3.68	11.10	3.64
MW-1	7/20/01	14.74	10.53	4.21	10.54	4.20
MW-1	8/1/01	14.74	10.74	4.00	10.74	4.00
MW-2	11/28/00	14.24	11.96	2.28	11.94	2.30
MW-2	12/4/00	14.24	11.93	2.31	11.94	2.30
MW-2	7/20/01	14.24	NM	NM	11.47	2.77
MW-2	8/1/01	14.24	11.56	2.68	11.54	2.70
MW-2D	7/20/01	13.25	10.39	2.86	10.09	3.16
MW-2D	8/1/01	13.25	10.33	2.92	10.12	3.13
MW-2I	7/20/01	13.52	10.67	2.85	10.68	2.84
MW-2I	8/1/01	13.52	10.81	2.71	10.74	2.78
MW-3	7/20/00	15.66	NM	NM	DRY	DRY
MW-3	8/1/00	15.66	DRY	DRY	DRY	DRY
MW-3	11/28/00	15.66	DRY	DRY	DRY	DRY
MW-3	12/4/00	15.66	DRY	DRY	DRY	DRY
MW-21	11/28/00	12.66	10.31	2.35	10.29	2.37
MW-21	12/4/00	12.66	10.27	2.39	10.31	2.35
MW-21	7/20/01	12.66	9.72	2.94	9.74	2.92
MW-21	8/1/01	12.66	9.91	2.75	9.86	2.80
MW-22	11/28/00	14.92	11.04	3.88	11.04	3.88
MW-22	12/4/00	14.92	11.05	3.87	11.10	3.82
MW-22	7/20/01	14.92	10.43	4.49	10.37	4.55
MW-22	8/1/01	14.92	10.59	4.33	10.59	4.33
MW-23	11/28/00	15.28	11.88	3.40	11.88	3.40
MW-23	12/4/00	15.28	11.94	3.34	11.96	3.32
MW-23	7/20/01	15.28	11.29	3.99	11.35	3.93
MW-23	8/1/01	15.28	11.52	3.76	11.51	3.77
MW-23I	7/20/01	14.66	10.62	4.04	10.54	4.12
MW-23I	8/1/01	14.66	10.81	3.85	10.74	3.92
MW-24	11/28/00	14.60	12.10	2.50	12.10	2.50
MW-24	12/4/00	14.60	12.21	2.39	12.19	2.41
MW-24	7/20/01	14.60	11.68	2.92	11.68	2.92
MW-24	8/1/01	14.60	11.79	2.81	11.76	2.84
MW-25	11/28/00	13.67	10.69	2.98	10.58	3.09

Table 11. Water-Level Elevations Determined on November 28, 2000, December 4, 2000, July 20, 2001, and August 1, 2001, Former Thypin Steel Inc., Facility, Manorhaven, New York.

Monitoring Well Designation	Date of Measurement	Measuring Point Elevation (1)	Low Tide DTW (ft bls)	Low Tide Elevation (1)	High Tide DTW (ft bls)	High Tide Elevation (1)
MW-25	12/4/00	13.67	10.09	3.58	10.02	3.65
MW-25	7/20/01	13.67	10.46	3.21	10.32	3.35
MW-25	8/1/01	13.67	10.70	2.97	10.50	3.17
MW-26	11/28/00	11.68	9.48	2.20	9.08	2.60
MW-26	12/4/00	11.68	9.60	2.08	9.65	2.03
MW-26D	7/20/01	11.95	10.04	1.91	9.22	2.73
MW-26D	8/1/01	11.95	10.27	1.68	9.58	2.37
MW-26I	7/20/01	11.37	9.14	2.23	8.03	3.34
MW-26I	8/1/01	11.37	9.15	2.22	8.34	3.03
MW-26S	7/20/01	11.68	8.93	2.75	8.79	2.89
MW-26S	8/1/01	11.68	9.42	2.26	9.98	1.70
MW-27	11/28/00	13.45	10.15	3.30	10.19	3.26
MW-27	12/4/00	13.45	10.19	3.26	10.23	3.22
MW-27	7/20/01	13.45	9.57	3.88	9.57	3.88
MW-27	8/1/01	13.45	9.75	3.70	9.76	3.69
MW-28	11/28/00	14.02	10.77	3.25	10.73	3.29
MW-28	12/4/00	14.02	10.79	3.23	10.79	3.23
MW-28	7/20/01	14.02	10.16	3.86	10.16	3.86
MW-28	8/1/01	14.02	10.35	3.67	10.35	3.67
MW-29D	7/20/01	14.01	11.11	2.90	10.91	3.10
MW-29D	8/1/01	14.01	10.99	3.02	10.80	3.21
MW-29I	7/20/01	13.85	10.46	3.39	10.44	3.41
MW-29I	8/1/01	13.85	10.63	3.22	10.56	3.29
MW-29S	7/20/01	13.78	10.76	3.02	10.81	2.97
MW-29S	8/1/01	13.78	10.87	2.91	10.86	2.92
MW-30I	7/20/01	12.65	9.92	2.73	9.73	2.92
MW-30I	8/1/01	12.65	10.02	2.63	9.79	2.86
MW-30S	7/20/01	12.64	9.93	2.71	9.86	2.78
MW-30S	8/1/01	12.64	9.99	2.65	9.92	2.72
MW-31D	7/20/01	14.45	11.42	3.03	11.12	3.33
MW-31D	8/1/01	14.45	11.22	3.23	11.03	3.42
MW-31I	7/20/01	14.63	11.10	3.53	11.09	3.54
MW-31I	8/1/01	14.63	11.24	3.39	11.24	3.39
MW-31S	7/20/01	14.23	11.05	3.18	11.04	3.19
MW-31S	8/1/01	14.23	11.19	3.08	11.15	3.04

Table 11. Water-Level Elevations Determined on November 28, 2000, December 4, 2000, July 20, 2001, and August 1, 2001, Former Thypin Steel Inc., Facility, Manorhaven, New York.

Monitoring Well Designation	Date of Measurement	Measuring Point Elevation (1)	Low Tide DTW (ft bls)	Low Tide Elevation (1)	High Tide DTW (ft bls)	High Tide Elevation (1)
MW-32	7/20/01	14.19	9.87	4.32	9.94	4.25
MW-32	8/1/01	14.19	10.11	4.08	10.09	4.10
MW-33D	7/20/01	13.30	10.07	3.23	9.71	3.59
MW-33D	8/1/01	13.30	9.98	3.32	9.72	3.58
MW-33I	7/20/01	13.48	9.83	3.65	9.72	3.76
MW-33I	8/1/01	13.48	9.97	3.51	9.88	3.60
MW-33S	7/20/01	13.34	9.78	3.56	9.74	3.60
MW-33S	8/1/01	13.34	9.94	3.40	9.98	3.36
MW-34D	7/20/01	11.52	9.77	1.75	9.11	2.41
MW-34D	8/1/01	11.52	9.43	2.09	8.74	2.78
MW-34I	7/20/01	10.47	7.79	2.68	6.89	3.58
MW-34I	8/1/01	10.47	7.89	2.58	7.23	3.24
MW-34S	7/20/01	11.53	8.09	3.44	8.07	3.46
MW-34S	8/1/01	11.53	8.78	2.75	8.47	3.06
MW-35D	7/20/01	13.56	11.08	2.48	10.57	2.99
MW-35D	8/1/01	13.56	10.70	2.86	10.35	3.21
MW-35I	7/20/01	13.47	10.12	3.35	9.94	3.53
MW-35I	8/1/01	13.47	10.26	3.21	10.09	3.38
MW-35S	7/20/01	13.69	10.71	2.98	10.69	3.00
MW-35S	8/1/01	13.69	10.77	2.92	10.72	2.97

Note:
S - Shallow well
I - Intermediate well
D - Deep well
DTW - Depth to water measured in feet below land surface from top of well casing
ft bls - Feet below land surface
(1) - Feet relative to mean sea level
NM - Not Measured
Monitoring wells without D, I or S designations indicate a shallow well

Table 12. Summary of Total Petroleum Hydrocarbons Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	SB-4 10/20/00 20-22	SB-5 10/20/00 20-22	SB-6 10/24/00 14-16	SB-6 10/24/00 20-22
Total Petroleum Hydrocarbons		20,910U	20,570U	20,570U	20,570U

U - Indicates that the compound was analyzed for but not detected
µg/kg - Micrograms per kilogram
ft bls - feet below land surface

Table 13. Summary of Base Neutral Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-9A 10/02/99 6-8	TP-9B 10/02/99 6-8	TP-9C 10/02/99 6-8	TP-9D 10/02/99 4-6	SB-8 10/25/2000 6-8
1,2,4-Trichlorobenzene	3,400		190U	180U	180U	180U	NA
1,2-Dichlorobenzene	7,900		190U	180U	180U	180U	NA
1,3-Dichlorobenzene	1,600		190U	180U	180U	180U	NA
1,4-Dichlorobenzene	8,500		190U	180U	180U	180U	NA
1-Chloro-4-phenoxybenzene	--		NA	NA	NA	NA	NA
2,4,6-Tribromophenol	--		NA	NA	NA	NA	NA
2,4-Dinitrotoluene	--		190U	180U	180U	180U	NA
2,6-Dinitrotoluene	1,000		190U	180U	180U	180U	NA
2-Chloronaphthalene	--		190U	180U	180U	180U	NA
2-Fluorobiphenyl	--		NA	NA	NA	NA	NA
2-Fluorophenol	--		NA	NA	NA	NA	NA
2-Methylnaphthalene	36,400		110J	180U	180U	840J	NA
2-Nitroaniline	430		190U	180U	180U	180U	NA
3,3'-Dichlorobenzidine	--		190U	180U	180U	180U	NA
3-Nitroaniline	500		190U	180U	180U	180U	NA
4-Bromodiphenyl ether	--		NA	NA	NA	NA	NA
4-Chloroaniline	220		190U	180U	180U	180U	NA
4-Nitroaniline	500		190U	180U	180U	180U	NA
Acenaphthene	50,000		380	470	180U	390	NA
Acenaphthylene	50,000		190U	180U	180U	180U	2J
Anthracene	50,000		770	830	180U	960	340U
Benzo[a]anthracene	224		**1500**	**2100**	180U	**1900**	340U
Benzo[a]pyrene	61		**1200**	**1800**	180U	**1600**	340U
Benzo[b]fluoranthene	220		**1500**	**2100**	180U	**1900**	340U
Benzo[g,h,i]perylene	50,000		470	650	180U	650	340U
Benzo[k]fluoranthene	220		**560**	**1000**	180U	**940**	340U
Benzyl alcohol	--		190U	180U	180U	180U	NA
Bis(2-chloroethoxy)methane	--		190U	180U	180U	180U	NA
Bis(2-chloroethyl)ether	--		190U	180U	180U	180U	NA
Bis(2-chloroisopropyl)ether	--		NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	50,000		190U	180U	180U	180U	NA

Table 13. Summary of Base Neutral Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-9A 10/02/99 6-8	TP-9B 10/02/99 6-8	TP-9C 10/02/99 6-8	TP-9D 10/02/99 4-6	SB-8 10/25/2000 6-8
Butylbenzyl phthalate	50,000		190U	180U	180U	180U	NA
Chrysene	400		**1,300**	**2,000**	180U	**1,700**	340U
Di-n-butyl phthalate	8,100		330U	330U	330U	330U	NA
Di-n-octyl phthalate	50,000		190U	180U	180U	180U	NA
Di-n-propylnitrosamine	--		NA	NA	NA	NA	NA
Dibenzo[a,h]anthracene	14		**170J**	**270**	180U	**250**	340U
Dibenzofuran	6,200		250	130J	180U	250	NA
Diethyl phthalate	7,100		190U	180U	180U	180U	NA
Dimethyl phthalate	2,000		190U	180U	180U	180U	NA
Fluoranthene	50,000		2,900	3,800	180U	3,900	340U
Fluorene	50,000		470	330	180U	510	340U
Hexachlorobenzene	410		190U	180U	180U	180U	NA
Hexachlorobutadiene	--		190U	180U	180U	180U	NA
Hexachlorocyclopentadiene	--		560U	540U	530U	540U	NA
Hexachloroethane	--		190U	180U	180U	180U	NA
Indeno[1,2,3-cd]pyrene	3,200		530	730	180U	720	340U
Isophorone	4,400		190U	180U	180U	180U	NA
N-Nitrosodiphenylamine	--		190U	180U	180U	180U	NA
Naphthalene	13,000		230	180U	180U	170	340U
Nitrobenzene	200		190U	180U	180U	180U	NA
Phenanthrene	50,000		2400	2500	180U	2800	340U
Pyrene	50,000		2000	2700	180U	2500	4J

U - Indicates that the compound was analyzed for but not detected
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
J - Estimated value
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
NA - Not analyzed

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 13. Summary of Base Neutral Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	SB-9 10/25/2000 6-8	SB-10 10/30/2000 6-8	SURFACE #1 07/03/01 0-2	SURFACE #3 07/03/01 0-2	SURFACE #4 07/03/01 0-2
1,2,4-Trichlorobenzene	3,400		NA	NA	NA	NA	340U
1,2-Dichlorobenzene	7,900		NA	NA	NA	NA	340U
1,3-Dichlorobenzene	1,600		NA	NA	NA	NA	340U
1,4-Dichlorobenzene	8,500		NA	NA	NA	NA	340U
1-Chloro-4-phenoxybenzene	--		NA	NA	NA	NA	340U
2,4,6-Tribromophenol	--		NA	NA	NA	NA	1100
2,4-Dinitrotoluene	--		NA	NA	NA	NA	340U
2,6-Dinitrotoluene	1,000		NA	NA	NA	NA	340U
2-Chloronaphthalene	--		NA	NA	NA	NA	340U
2-Fluorobiphenyl	--		NA	NA	NA	NA	1200
2-Fluorophenol	--		NA	NA	NA	NA	2900
2-Methylnaphthalene	36,400		NA	NA	NA	NA	340U
2-Nitroaniline	430		NA	NA	NA	NA	1600U
3,3'-Dichlorobenzidine	--		NA	NA	NA	NA	680U
3-Nitroaniline	500		NA	NA	NA	NA	1600U
4-Bromodiphenyl ether	--		NA	NA	NA	NA	340U
4-Chloroaniline	220		NA	NA	NA	NA	340U
4-Nitroaniline	500		NA	NA	NA	NA	1600U
Acenaphthene	50,000		NA	NA	8J	340U	340U
Acenaphthylene	50,000		2J	360U	39J	340U	340U
Anthracene	50,000		19J	360U	70J	340U	340U
Benzo[a]anthracene	224		100J	27J	150J	22J	5J
Benzo[a]pyrene	61		91J	22J	150J	24J	5J
Benzo[b]fluoranthene	220		72J	22J	100J	21J	6J
Benzo[g,h,i]perylene	50,000		46J	13J	100J	12J	340U
Benzo[k]fluoranthene	220		94J	32J	140J	21J	5J
Benzyl alcohol	--		NA	NA	NA	NA	340U
Bis(2-chloroethoxy)methane	--		NA	NA	NA	NA	340U
Bis(2-chloroethyl)ether	--		NA	NA	NA	NA	340U
Bis(2-chloroisopropyl)ether	--		NA	NA	NA	NA	340U
Bis(2-ethylhexyl)phthalate	50,000		NA	NA	NA	NA	340U

Table 13. Summary of Base Neutral Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	SB-9 10/25/2000 6-8	SB-10 10/30/2000 6-8	SURFACE #1 07/03/01 0-2	SURFACE #3 07/03/01 0-2	SURFACE #4 07/03/01 0-2
Butylbenzyl phthalate	50,000		NA	NA	NA	NA	340U
Chrysene	400		110J	30J	160J	20J	8J
Di-n-butyl phthalate	8,100		NA	NA	NA	NA	340U
Di-n-octyl phthalate	50,000		NA	NA	NA	NA	340U
Di-n-propylnitrosamine	--		NA	NA	NA	NA	340U
Dibenzo[a,h]anthracene	14		15J	360U	36J	340U	340U
Dibenzofuran	6,200		NA	NA	NA	NA	340U
Diethyl phthalate	7,100		NA	NA	NA	NA	340U
Dimethyl phthalate	2,000		NA	NA	NA	NA	340U
Fluoranthene	50,000		200J	66J	210J	38J	10J
Fluorene	50,000		3J	360U	8J	340U	340U
Hexachlorobenzene	410		NA	NA	NA	NA	340U
Hexachlorobutadiene	--		NA	NA	NA	NA	340U
Hexachlorocyclopentadiene	--		NA	NA	NA	NA	340UJ
Hexachloroethane	--		NA	NA	NA	NA	340U
Indeno[1,2,3-cd]pyrene	3,200		44J	14J	100J	13J	340U
Isophorone	4,400		NA	NA	NA	NA	340U
N-Nitrosodiphenylamine	--		NA	NA	NA	NA	340U
Naphthalene	13,000		340U	360U	16J	340U	340U
Nitrobenzene	200		NA	NA	NA	NA	340U
Phenanthrene	50,000		82J	31J	120J	11J	6J
Pyrene	50,000		200J	48J	270J	34J	10J

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ft bls - Feet below land surface
J - Estimated value
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
NA - Not analyzed

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 13. Summary of Base Neutral Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	SURFACE #5 07/03/01 0-2	SURFACE #8 07/03/01 0-2	SURFACE #10 07/03/01 0-2	SURFACE #11 07/03/01 0-2	SURFACE #12 07/03/01 0-2
1,2,4-Trichlorobenzene	3,400		360U	350U	690U	1800U	350U
1,2-Dichlorobenzene	7,900		360U	350U	690U	1800U	350U
1,3-Dichlorobenzene	1,600		360U	350U	690U	1800U	350U
1,4-Dichlorobenzene	8,500		360U	350U	690U	1800U	350U
1-Chloro-4-phenoxybenzene	--		360U	350U	690U	1800U	350U
2,4,6-Tribromophenol	--		10	63	980	1100	700
2,4-Dinitrotoluene	--		360U	350U	690U	1800U	350U
2,6-Dinitrotoluene	1,000		360U	350U	690U	1800U	350U
2-Chloronaphthalene	--		360U	350U	690U	1800U	350U
2-Fluorobiphenyl	--		890	1700	1000	3200	1400
2-Fluorophenol	--		1700	3100	2000	6200	3100
2-Methylnaphthalene	36,400		25J	15J	28J	250J	39J
2-Nitroaniline	430		1800U	1700U	3300U	8500U	1700U
3,3'-Dichlorobenzidine	--		720U	710U	1400U	3500U	700U
3-Nitroaniline	500		1800U	1700U	3300U	8500U	1700U
4-Bromodiphenyl ether	--		360U	350U	690U	1800U	350U
4-Chloroaniline	220		360U	350U	690U	1800U	350U
4-Nitroaniline	500		1800U	1700U	3300U	8500U	1700U
Acenaphthene	50,000		100J	77J	190J	1100J	89J
Acenaphthylene	50,000		100J	120J	36J	210J	110J
Anthracene	50,000		420	330J	490J	3000	320J
Benzo[a]anthracene	224		**1200**	**880**	**1300**	**7000**	**1400**
Benzo[a]pyrene	61		**1100**	**920**	**1000**	**5800**	**1600**
Benzo[b]fluoranthene	220		**770**	**650**	**760**	**4700**	**1100**
Benzo[g,h,i]perylene	50,000		610	880	780	4000	1000
Benzo[k]fluoranthene	220		**950**	**960**	**960**	**4900**	**1400**
Benzyl alcohol	--		360U	350U	690U	1800U	350U
Bis(2-chloroethoxy)methane	--		360U	350U	690U	1800U	350U
Bis(2-chloroethyl)ether	--		360U	350U	690U	1800U	350U
Bis(2-chloroisopropyl)ether	--		360U	350U	690U	1800U	350U
Bis(2-ethylhexyl)phthalate	50,000		360U	350U	690U	1800U	350U

Table 13. Summary of Base Neutral Compounds Detected in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	SURFACE #5 07/03/01 0-2	SURFACE #8 07/03/01 0-2	SURFACE #10 07/03/01 0-2	SURFACE #11 07/03/01 0-2	SURFACE #12 07/03/01 0-2
Butylbenzyl phthalate	50,000		15J	47J	690U	1800U	350U
Chrysene	400		**1200**	**950**	**1200**	**7600**	**1600**
Di-n-butyl phthalate	8,100		360U	350U	690U	1800U	350U
Di-n-octyl phthalate	50,000		360U	350U	690U	1800U	350U
Di-n-propylnitrosamine	--		360U	350U	690U	1800U	350U
Dibenzo[a,h]anthracene	14		**250J**	**240J**	**280J**	**2100**	**380**
Dibenzofuran	6,200		61J	39J	94J	710J	47J
Diethyl phthalate	7,100		360U	350U	690U	1800U	350U
Dimethyl phthalate	2,000		560	210J	690U	150J	350U
Fluoranthene	50,000		1800	1300	2200	12000	2100
Fluorene	50,000		110J	64J	200J	1200J	65J
Hexachlorobenzene	410		360U	350U	690U	1800U	350U
Hexachlorobutadiene	--		360U	350U	690U	1800U	350U
Hexachlorocyclopentadiene	--		360UJ	350UJ	690UJ	1800UJ	350UJ
Hexachloroethane	--		360U	350U	690U	1800U	350U
Indeno[1,2,3-cd]pyrene	3,200		690	810	780	**4100**	1200
Isophorone	4,400		360U	350U	690U	1800U	350U
N-Nitrosodiphenylamine	--		360U	350U	690U	1800U	350U
Naphthalene	13,000		49J	30J	22J	510J	58J
Nitrobenzene	200		360U	350U	690U	1800U	350U
Phenanthrene	50,000		1300	790	1800	10000	1000
Pyrene	50,000		2200	1500	2600	14000	2800

U - Indicates that the compound was analyzed for but not detected
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
J - Estimated value
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
NA - Not analyzed

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 14. Summary of pH in Soil, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in Standard Units)	Designation: / Sample Date: / Sample Depth (ft bls):	SB-32 04/10/2001 0-2	SB-32 04/10/2001 4-6	SB-32 04/10/2001 8-10	SB-44 04/10/2001 0-2	SB-44 04/10/2001 4-6	SB-44 04/10/2001 8-10
pH		8.42	7.92	7.24	9.98	7.77	7.65

Parameter (Concentrations in Standard Units)	Designation: / Sample Date: / Sample Depth (ft bls):	SB-70 04/10/2001 0-2	SB-70 04/10/2001 4-6	SB-70 04/10/2001 8-10	SB-71 04/19/2001 10-12	SB-72 04/19/2001 10-12
pH		7.82	7.94	7.99	7.63	8.41

ft bls - Feet below land surface

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation:	GS-1 RE	GS-2	GS-2 RE	LP-C
		Sample Date:	5/4/01	4/30/01	4/30/01	5/1/01
		Sample Depth (ft bls):	--	--	--	--
Chloromethane	--		1000U	10U	10U	10U
Bromomethane	--		1000U	10U	10U	10U
Vinyl Chloride	200		1000U	10U	10U	10U
Chloroethane	1,900		1000U	10U	10U	10U
Methylene Chloride	100		1000U	10U	10U	10U
Acetone	200		**7000**	10U	10U	10U
Carbon Disulfide	2,700		1000U	5U	5U	5U
Vinyl Acetate	--		1000U	10U	10U	10U
1,1-Dichloroethene	400		1000U	5U	5U	5U
1,1-Dichloroethane	200		1000U	5U	5U	5U
cis-1,2-Dichloroethene	--		1000U	4J	3J	5U
trans-1,2-Dichloroethene	300		1000U	5U	5U	5U
Chloroform	300		270J	5U	5U	2J
1,2-Dichloroethane	100		1000U	5U	5U	5U
2-Butanone	300		1000U	10U	120J	10U
1,1,1-Trichloroethane	800		1000U	5U	5U	5U
Carbon Tetrachloride	600		1000U	5U	5U	5U
Bromodichloromethane	--		1000U	5U	5U	5U
1,2-Dichloropropane	--		1000U	5U	5U	5U
cis-1,3-Dichloropropene	--		1000U	5U	5U	5U
Trichloroethene	700		**6800**	120	98	7J
Dibromochloromethane	--		1000U	5U	5U	5U
1,1,2-Trichloroethane	--		1000U	5U	5U	5U
Benzene	60		1000U	5U	5U	5U
trans-1,3-Dichloropropene	--		1000U	5U	5U	5U
Bromoform	--		1000U	5U	5U	5U
4-Methyl-2-Pentanone	1,000		1000U	10UJ	10U	10U
2-Hexanone	--		1000U	10UJ	10U	10U
Tetrachloroethene	1,400		1000U	20J	16	3J
Toluene	1,500		**9700**	5UJ	5U	3J
1,1,2,2-Tetrachloroethane	600		1000U	5UJ	5U	5U
Chlorobenzene	1,700		**5600**	5UJ	5U	2J
Ethylbenzene	5,500		**10000**	5UJ	5U	5U
Styrene	--		1000U	5UJ	5U	5U
Xylenes (total)	1,200		**140000**	5UJ	5U	5U

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
NA - Not analyzed

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	LP-E 4/30/01 --	LP-W 4/30/01 --	ST-1 5/1/01 --	TP-12 PIPE WEST 4/4/01 --
Chloromethane	--		10U	10U	10U	10U
Bromomethane	--		10U	5U	10U	10U
Vinyl Chloride	200		10U	10U	10U	10U
Chloroethane	1,900		10U	10U	10U	10U
Methylene Chloride	100		10U	10U	10U	10U
Acetone	200		10U	10U	10U	10U
Carbon Disulfide	2,700		2J	2J	130J	5U
Vinyl Acetate	--		10U	5U	10U	5U
1,1-Dichloroethene	400		5U	5U	5U	5U
1,1-Dichloroethane	200		1J	5U	5U	5U
cis-1,2-Dichloroethene	--		0.7J	5U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U	5U
Chloroform	300		2J	6J	170J	5U
1,2-Dichloroethane	100		5U	5U	5U	5U
2-Butanone	300		6JB	33B	**550J**	5U
1,1,1-Trichloroethane	800		5U	5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U	5U
Bromodichloromethane	--		5U	5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U	5U
Trichloroethene	700		6	5U	180J	2J
Dibromochloromethane	--		5U	5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U	5U
Benzene	60		5U	5U	**770**	5U
trans-1,3-Dichloropropene	--		5U	5U	5U	5U
Bromoform	--		10U	10U	5U	NA
4-Methyl-2-Pentanone	1,000		10U	10U	10U	NA
2-Hexanone	--		10U	10U	10U	NA
Tetrachloroethene	1,400		5U	5U	72J	0.9J
Toluene	1,500		1J	2J	5U	NA
1,1,2,2-Tetrachloroethane	600		5U	5U	5U	5U
Chlorobenzene	1,700		0.3J	5U	**12000**	5U
Ethylbenzene	5,500		2J	0.9J	200J	NA
Styrene	--		5U	5U	5U	NA
Xylenes (total)	1,200		2J	4J	160J	NA

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NW - Northwest
NE - Northeast
SW - Southwest
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C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
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Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-12 PIPE EAST 4/4/01 --	TP-12 NE 4/4/01 --	TP-12 SW 4/4/01 --
Chloromethane	--		10U	10U	10U
Bromomethane	--		NA	NA	NA
Vinyl Chloride	200		10U	10U	10U
Chloroethane	1,900		10U	10U	10U
Methylene Chloride	100		10U	10U	10U
Acetone	200		NA	NA	NA
Carbon Disulfide	2,700		5U	5U	5U
Vinyl Acetate	--		5U	5U	5U
1,1-Dichloroethene	400		5U	5U	5U
1,1-Dichloroethane	200		5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U
Chloroform	300		5U	5U	5U
1,2-Dichloroethane	100		5U	5U	5U
2-Butanone	300		5U	5U	5U
1,1,1-Trichloroethane	800		5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U
Bromodichloromethane	--		5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U
Trichloroethene	700		5U	5U	5U
Dibromochloromethane	--		5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U
Benzene	60		5U	5U	5U
trans-1,3-Dichloropropene	--		5U	5U	5U
Bromoform	--		5U	5U	5U
4-Methyl-2-Pentanone	1,000		5U	5U	5U
2-Hexanone	--		5U	5U	5U
Tetrachloroethene	1,400		5U	5U	5U
Toluene	1,500		5U	5U	5U
1,1,2,2-Tetrachloroethane	600		5U	5U	5U
Chlorobenzene	1,700		5U	5U	5U
Ethylbenzene	5,500		NA	NA	NA
Styrene	--		NA	NA	NA
Xylenes (total)	1,200		NA	NA	NA

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B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
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C1 - Cradle 1
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FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
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SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
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Note:
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Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-12 CLOTH RE 4/4/01 --	TP-15 C1 4/17/01 6-8	TP-15 C1 4/17/01 8-10	TP-15 C2 4/17/01 6-8
Chloromethane	--		10U	10U	10U	10U
Bromomethane	--		NA	NA	NA	NA
Vinyl Chloride	200		10U	10U	10U	10U
Chloroethane	1,900		10U	10U	10U	10U
Methylene Chloride	100		10U	10U	10U	10U
Acetone	200		NA	NA	NA	NA
Carbon Disulfide	2,700		5U	5U	5U	5U
Vinyl Acetate	--		5U	5U	NA	NA
1,1-Dichloroethene	400		5U	5U	5U	5U
1,1-Dichloroethane	200		5U	5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U	5U
Chloroform	300		5U	5U	5U	5U
1,2-Dichloroethane	100		5U	5U	5U	5U
2-Butanone	300		NA	NA	NA	NA
1,1,1-Trichloroethane	800		5U	5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U	5U
Bromodichloromethane	--		5U	5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U	5U
Trichloroethene	700		9J	5U	0.5J	5U
Dibromochloromethane	--		5U	5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U	5U
Benzene	60		NA	NA	NA	NA
trans-1,3-Dichloropropene	--		5U	5U	5U	5U
Bromoform	--		NA	NA	NA	NA
4-Methyl-2-Pentanone	1,000		NA	NA	NA	NA
2-Hexanone	--		NA	NA	NA	NA
Tetrachloroethene	1,400		2J	0.8J	0.9J	5U
Toluene	1,500		NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	600		5U	5U	5U	5U
Chlorobenzene	1,700		5U	5U	5U	5U
Ethylbenzene	5,500		NA	NA	NA	NA
Styrene	--		NA	NA	NA	NA
Xylenes (total)	1,200		NA	NA	NA	NA

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
NA - Not analyzed

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-15 C2 4/17/01 8-10	TP-15 CRADLE 2-3 4/4/01 3-4
Chloromethane	--		10U	10U
Bromomethane	--		NA	NA
Vinyl Chloride	200		10U	10U
Chloroethane	1,900		10U	10U
Methylene Chloride	100		10U	10U
Acetone	200		NA	NA
Carbon Disulfide	2,700		5U	5U
Vinyl Acetate	--		NA	NA
1,1-Dichloroethene	400		5U	5U
1,1-Dichloroethane	200		5U	5U
cis-1,2-Dichloroethene	--		5U	5U
trans-1,2-Dichloroethene	300		5U	5U
Chloroform	300		5U	5U
1,2-Dichloroethane	100		5U	5U
2-Butanone	300		NA	NA
1,1,1-Trichloroethane	800		5U	5U
Carbon Tetrachloride	600		5U	5U
Bromodichloromethane	--		5U	5U
1,2-Dichloropropane	--		5U	5U
cis-1,3-Dichloropropene	--		5U	5U
Trichloroethene	700		5U	4J
Dibromochloromethane	--		5U	5U
1,1,2-Trichloroethane	--		5U	5U
Benzene	60		NA	NA
trans-1,3-Dichloropropene	--		5U	5U
Bromoform	--		NA	NA
4-Methyl-2-Pentanone	1,000		NA	NA
2-Hexanone	--		NA	NA
Tetrachloroethene	1,400		1J	61
Toluene	1,500		NA	NA
1,1,2,2-Tetrachloroethane	600		5U	1J
Chlorobenzene	1,700		5U	5U
Ethylbenzene	5,500		NA	NA
Styrene	--		NA	NA
Xylenes (total)	1,200		NA	NA

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
NA - Not analyzed

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-15 CRADLE 2 BOTTOM RE 4/4/01 --	TP-15 DRUM 4/4/01 --	TP-16 FNE 4/17/01 5-7
Chloromethane	--		10U	10U	10U
Bromomethane	--		NA	NA	NA
Vinyl Chloride	200		10U	10U	10U
Chloroethane	1,900		10U	10U	10U
Methylene Chloride	100		10U	10U	10U
Acetone	200		NA	NA	NA
Carbon Disulfide	2,700		5U	5U	5U
Vinyl Acetate	--		NA	NA	NA
1,1-Dichloroethene	400		5U	5U	5U
1,1-Dichloroethane	200		5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U
Chloroform	300		5U	5U	5U
1,2-Dichloroethane	100		5U	5U	5U
2-Butanone	300		NA	NA	NA
1,1,1-Trichloroethane	800		5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U
Bromodichloromethane	--		5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U
Trichloroethene	700		2J	0.8J	5U
Dibromochloromethane	--		5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U
Benzene	60		NA	NA	NA
trans-1,3-Dichloropropene	--		5U	5U	5U
Bromoform	--		NA	NA	NA
4-Methyl-2-Pentanone	1,000		NA	NA	NA
2-Hexanone	--		NA	NA	NA
Tetrachloroethene	1,400		49J	11	0.6J
Toluene	1,500		NA	NA	NA
1,1,2,2-Tetrachloroethane	600		5U	5U	5U
Chlorobenzene	1,700		5U	5U	5U
Ethylbenzene	5,500		NA	NA	NA
Styrene	--		NA	NA	NA
Xylenes (total)	1,200		NA	NA	NA

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
NA - Not analyzed

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-16 FNE 4/17/01 9-11	TP-16 FSW 4/17/01 5-7	TP-16 FSW 4/17/01 7-9	TP-16-GS 4/4/01 --
Chloromethane	--		10U	10U	10U	1000U
Bromomethane	--		NA	NA	NA	1000U
Vinyl Chloride	200		10U	10U	10U	1000U
Chloroethane	1,900		10U	10U	10U	1000U
Methylene Chloride	100		10U	10U	10U	1000U
Acetone	200		NA	NA	NA	1000U
Carbon Disulfide	2,700		5U	5U	5U	1000U
Vinyl Acetate	--		NA	NA	NA	1000U
1,1-Dichloroethene	400		5U	5U	5U	1000U
1,1-Dichloroethane	200		5U	5U	5U	1000U
cis-1,2-Dichloroethene	--		5U	5U	5U	1000U
trans-1,2-Dichloroethene	300		5U	5U	5U	1000U
Chloroform	300		5U	5U	5U	1000U
1,2-Dichloroethane	100		5U	5U	5U	1000U
2-Butanone	300		NA	NA	NA	8J
1,1,1-Trichloroethane	800		5U	5U	5U	1000U
Carbon Tetrachloride	600		5U	5U	5U	1000U
Bromodichloromethane	--		5U	5U	5U	1000U
1,2-Dichloropropane	--		5U	5U	5U	1000U
cis-1,3-Dichloropropene	--		5U	5U	5U	1000U
Trichloroethene	700		5U	5U	5U	**5200**
Dibromochloromethane	--		5U	5U	5U	1000U
1,1,2-Trichloroethane	--		5U	5U	5U	1000U
Benzene	60		NA	NA	NA	1000U
trans-1,3-Dichloropropene	--		5U	5U	5U	1000U
Bromoform	--		NA	NA	NA	1000U
4-Methyl-2-Pentanone	1,000		NA	NA	NA	1000U
2-Hexanone	--		NA	NA	NA	1000U
Tetrachloroethene	1,400		5U	5U	5U	180J
Toluene	1,500		NA	NA	NA	**5200**
1,1,2,2-Tetrachloroethane	600		5U	5U	5U	1000U
Chlorobenzene	1,700		5U	5U	5U	**2900J**
Ethylbenzene	5,500		NA	NA	NA	**6500**
Styrene	--		NA	NA	NA	1000U
Xylenes (total)	1,200		NA	NA	NA	**86000**

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B - Analyte detected in laboratory blank
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-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
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C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-16-PE-BOTTOM 4/4/01 --	TP-16-PE-NORTH 4/4/01 --	TP-16-PE-SOUTH 4/4/01 --
Chloromethane	--		10U	10U	10U
Bromomethane	--		10U	10U	10U
Vinyl Chloride	200		10U	10U	10U
Chloroethane	1,900		10U	10U	10U
Methylene Chloride	100		10U	10U	10U
Acetone	200		10U	10U	10U
Carbon Disulfide	2,700		5UJ	5UJ	5U
Vinyl Acetate	--		10U	10U	10U
1,1-Dichloroethene	400		5U	5U	5U
1,1-Dichloroethane	200		5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U
Chloroform	300		5U	5U	5U
1,2-Dichloroethane	100		5U	5U	5U
2-Butanone	300		5J	8J	10U
1,1,1-Trichloroethane	800		5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U
Bromodichloromethane	--		5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U
Trichloroethene	700		1J	15	0.8J
Dibromochloromethane	--		5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U
Benzene	60		5U	5U	5U
trans-1,3-Dichloropropene	--		5U	5U	5U
Bromoform	--		5U	5U	5U
4-Methyl-2-Pentanone	1,000		10U	10U	10U
2-Hexanone	--		10U	10U	10U
Tetrachloroethene	1,400		5U	2J	5U
Toluene	1,500		5U	0.6J	0.6J
1,1,2,2-Tetrachloroethane	600		5U	5U	5U
Chlorobenzene	1,700		5U	5U	5U
Ethylbenzene	5,500		5U	5U	5U
Styrene	--		5U	5U	5U
Xylenes (total)	1,200		5U	2J	5U

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RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
NA - Not analyzed

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-16-PE-WEST 4/4/01 --	TP-16-PIPE-NORTH 4/4/01 --	TP-16/PET RE 4/4/01 --
Chloromethane	--		10U	10U	10U
Bromomethane	--		10U	10U	10U
Vinyl Chloride	200		10U	10U	10U
Chloroethane	1,900		10U	10U	10U
Methylene Chloride	100		10U	10U	10U
Acetone	200		10U	10U	10U
Carbon Disulfide	2,700		5U	5UJ	10U
Vinyl Acetate	--		10U	10U	10U
1,1-Dichloroethene	400		5U	5U	5U
1,1-Dichloroethane	200		5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	1J
trans-1,2-Dichloroethene	300		5U	5U	5U
Chloroform	300		5U	5U	5U
1,2-Dichloroethane	100		5U	5U	5U
2-Butanone	300		10U	10U	13U
1,1,1-Trichloroethane	800		5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U
Bromodichloromethane	--		5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U
Trichloroethene	700		2J	6J	1J
Dibromochloromethane	--		5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U
Benzene	60		5U	5U	5U
trans-1,3-Dichloropropene	--		5U	5U	5U
Bromoform	--		5U	5U	5U
4-Methyl-2-Pentanone	1,000		10U	10U	10U
2-Hexanone	--		10U	10U	10U
Tetrachloroethene	1,400		5U	1J	5U
Toluene	1,500		5U	5U	1J
1,1,2,2-Tetrachloroethane	600		5U	5U	5U
Chlorobenzene	1,700		5U	5U	5U
Ethylbenzene	5,500		5U	5U	5U
Styrene	--		5U	5U	5U
Xylenes (total)	1,200		5U	5U	8

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B - Analyte detected in laboratory blank
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NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
NA - Not analyzed

E - East	TP - Test Pit
W - West	C1 - Cradle 1
C - Center	C2 - Cradle 2
CS - Concrete Structure	FNE - Floor Northeast
DW - Dry Well	FSW - Floor Southwest
GS - Green Material	MHPN - Manhole Pipe North
GSP - Green Material Pipe	MHPW - Manhole Pipe West
LP - Leaching Pool	MHPS - Manhole Pipe South
ST - Septic Tank	SS - Sludge - Like Sample
SE - Southeast	PE - Post Excavation
NW - Northwest	PET - Black Wood Debris
NE - Northeast	CB - Catch Basin
SW - Southwest	

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-16 4/4/01 12-13	TP-16-3WP RE 4/4/01 --	TP-16-4CB 4/4/01 --
Chloromethane	--		10U	10U	10U
Bromomethane	--		10U	10U	10U
Vinyl Chloride	200		10U	10U	10U
Chloroethane	1,900		10U	10U	10U
Methylene Chloride	100		10U	10U	10U
Acetone	200		10U	10U	10U
Carbon Disulfide	2,700		5U	5U	5U
Vinyl Acetate	--		10U	10U	10U
1,1-Dichloroethene	400		5U	5U	5U
1,1-Dichloroethane	200		5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U
Chloroform	300		5U	5U	5U
1,2-Dichloroethane	100		5U	5U	5U
2-Butanone	300		32U	10U	10U
1,1,1-Trichloroethane	800		5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U
Bromodichloromethane	--		5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U
Trichloroethene	700		5U	21J	6J
Dibromochloromethane	--		5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U
Benzene	60		5U	5U	5U
trans-1,3-Dichloropropene	--		5U	5U	5U
Bromoform	--		5U	5U	5U
4-Methyl-2-Pentanone	1,000		10U	10UJ	10U
2-Hexanone	--		10U	10UJ	10U
Tetrachloroethene	1,400		0.5J	24J	2J
Toluene	1,500		1J	5UJ	5U
1,1,2,2-Tetrachloroethane	600		5U	5UJ	5U
Chlorobenzene	1,700		5U	5UJ	5U
Ethylbenzene	5,500		5U	5UJ	5U
Styrene	--		5U	5UJ	5U
Xylenes (total)	1,200		5U	5UJ	5U

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J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
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E - East
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CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
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Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	TP-16-2 CLAY PIPE 4/4/01 --	TP-16-WOOD 4/4/01 --	TP-19-1 4/4/01 --	TP-19-2 4/4/01 --
Chloromethane	--		10U	10U	10U	10U
Bromomethane	--		10U	10U	10U	10U
Vinyl Chloride	200		10U	10U	10U	10U
Chloroethane	1,900		10U	10U	10U	10U
Methylene Chloride	100		10U	10U	10U	10U
Acetone	200		10U	10U	10U	10U
Carbon Disulfide	2,700		1J	5U	5U	5U
Vinyl Acetate	--		10U	10U	10U	10U
1,1-Dichloroethene	400		5U	5U	5U	5U
1,1-Dichloroethane	200		5U	5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U	5U
Chloroform	300		5U	5U	5U	5U
1,2-Dichloroethane	100		5U	5U	5U	5U
2-Butanone	300		15U	5U	10U	10U
1,1,1-Trichloroethane	800		5U	5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U	5U
Bromodichloromethane	--		5U	5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U	5U
Trichloroethene	700		3J	5U	5U	5U
Dibromochloromethane	--		5U	5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U	5U
Benzene	60		5U	5U	5U	5U
trans-1,3-Dichloropropene	--		5U	5U	5U	5U
Bromoform	--		5U	5U	5U	5U
4-Methyl-2-Pentanone	1,000		10U	10U	10U	10U
2-Hexanone	--		10U	10U	10U	10U
Tetrachloroethene	1,400		0.9J	5U	5U	0.8J
Toluene	1,500		5U	0.5J	5U	1J
1,1,2,2-Tetrachloroethane	600		5U	5U	5U	5U
Chlorobenzene	1,700		5U	5U	5U	5U
Ethylbenzene	5,500		5U	5U	5U	5U
Styrene	--		5U	5U	5U	5U
Xylenes (total)	1,200		5U	5U	5U	5U

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
NA - Not analyzed

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	TP-21-1 4/4/01 --	TP-21-PE/SE 4/4/01 --	TP-21/NW 4/4/01 --	TP-23 GSP 4/17/01 --
Chloromethane	--		10U	10U	10U	10U
Bromomethane	--		NA	NA	NA	NA
Vinyl Chloride	200		10U	10U	10U	10U
Chloroethane	1,900		10U	10U	10U	10U
Methylene Chloride	100		10U	10U	10U	10U
Acetone	200		NA	NA	NA	NA
Carbon Disulfide	2,700		5U	12	0.7J	5U
Vinyl Acetate	--		NA	NA	NA	NA
1,1-Dichloroethene	400		5U	5U	5U	5U
1,1-Dichloroethane	200		5U	5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U	5U
Chloroform	300		5U	5U	5U	5U
1,2-Dichloroethane	100		5U	5U	5U	5U
2-Butanone	300		NA	NA	NA	NA
1,1,1-Trichloroethane	800		5U	5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U	0.9J
Bromodichloromethane	--		5U	5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U	5U
Trichloroethene	700		48	0.4J	5U	12
Dibromochloromethane	--		5U	5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U	5U
Benzene	60		NA	NA	NA	NA
trans-1,3-Dichloropropene	--		5U	5U	5U	5U
Bromoform	--		NA	NA	NA	NA
4-Methyl-2-Pentanone	1,000		NA	NA	NA	NA
2-Hexanone	--		NA	NA	NA	NA
Tetrachloroethene	1,400		190	1J	0.4J	180
Toluene	1,500		NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	600		5U	5U	5U	5U
Chlorobenzene	1,700		5U	5U	5U	5U
Ethylbenzene	5,500		NA	NA	NA	NA
Styrene	--		NA	NA	NA	NA
Xylenes (total)	1,200		NA	NA	NA	NA

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
NA - Not analyzed

E - East	TP - Test Pit
W - West	C1 - Cradle 1
C - Center	C2 - Cradle 2
CS - Concrete Structure	FNE - Floor Northeast
DW - Dry Well	FSW - Floor Southwest
GS - Green Material	MHPN - Manhole Pipe North
GSP - Green Material Pipe	MHPW - Manhole Pipe West
LP - Leaching Pool	MHPS - Manhole Pipe South
ST - Septic Tank	SS - Sludge - Like Sample
SE - Southeast	PE - Post Excavation
NW - Northwest	PET - Black Wood Debris
NE - Northeast	CB - Catch Basin
SW - Southwest	

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-23 MHPN 4/24/01 --	TP-23 MHPW RE 4/24/01 --	TP-23 MHPS 4/24/01 --	TP-31 SS RE 4/24/01 --
Chloromethane	--		10UJ	10U	10U	10U
Bromomethane	--		10UJ	10U	10U	10U
Vinyl Chloride	200		10UJ	10U	10U	10U
Chloroethane	1,900		10UJ	10U	10U	10U
Methylene Chloride	100		10U	10U	10U	10U
Acetone	200		10U	10U	10U	**680JB**
Carbon Disulfide	2,700		5UJ	5U	5U	33U
Vinyl Acetate	--		10R	10R	10R	10R
1,1-Dichloroethene	400		5UJ	5U	5U	5U
1,1-Dichloroethane	200		5UJ	5U	5U	5U
cis-1,2-Dichloroethene	--		5UJ	5U	5U	5U
trans-1,2-Dichloroethene	300		5UJ	5U	5U	5U
Chloroform	300		1J	5U	5U	5U
1,2-Dichloroethane	100		5UJ	5U	5U	5U
2-Butanone	300		10UJ	10U	10U	230
1,1,1-Trichloroethane	800		5UJ	5U	5U	5U
Carbon Tetrachloride	600		2J	5U	5U	5U
Bromodichloromethane	--		5UJ	5U	5U	5U
1,2-Dichloropropane	--		5UJ	5U	5U	5U
cis-1,3-Dichloropropene	--		5UJ	5U	5U	5U
Trichloroethene	700		34J	7J	1J	10J
Dibromochloromethane	--		5UJ	5U	5U	5U
1,1,2-Trichloroethane	--		5UJ	5U	5U	5U
Benzene	60		5UJ	5U	5U	5U
trans-1,3-Dichloropropene	--		5UJ	5U	5U	5U
Bromoform	--		5UJ	5U	5U	5U
4-Methyl-2-Pentanone	1,000		5UJ	5UJ	5U	5UJ
2-Hexanone	--		10UJ	10UJ	10U	10UJ
Tetrachloroethene	1,400		280J	180J	48	5J
Toluene	1,500		8J	3J	4J	5J
1,1,2,2-Tetrachloroethane	600		5UJ	5UJ	5U	5UJ
Chlorobenzene	1,700		5UJ	5UJ	5U	5UJ
Ethylbenzene	5,500		5UJ	5UJ	5U	5UJ
Styrene	--		5UJ	5UJ	5U	5UJ
Xylenes (total)	1,200		5UJ	5UJ	5U	5UJ

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J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
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CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 15. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-32/WP 4/25/01 --	TP-33/DW 5/8/01 --	TP-35 CS 5/16/01 --	TP-36 PIPE 5/10/01 --
Chloromethane	--		10U	10U	10U	10U
Bromomethane	--		10U	10U	10U	10U
Vinyl Chloride	200		10U	10U	10U	10U
Chloroethane	1,900		10U	10U	10U	10U
Methylene Chloride	100		10U	10U	10U	10U
Acetone	200		10U	10U	10U	10U
Carbon Disulfide	2,700		5U	5U	5U	5U
Vinyl Acetate	--		10U	10U	10U	10U
1,1-Dichloroethene	400		5U	5U	5U	5U
1,1-Dichloroethane	200		5U	5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U	5U
trans-1,2-Dichloroethene	300		5U	5U	5U	5U
Chloroform	300		5U	0.8J	5U	5U
1,2-Dichloroethane	100		5U	5U	5U	5U
2-Butanone	300		10U	10U	10U	**330**
1,1,1-Trichloroethane	800		5U	5U	5U	5U
Carbon Tetrachloride	600		5U	5U	5U	5U
Bromodichloromethane	--		5U	5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U	5U
cis-1,3-Dichloropropene	--		5U	5U	5U	5U
Trichloroethene	700		5U	5U	5U	5U
Dibromochloromethane	--		5U	5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U	5U
Benzene	60		5U	5U	5U	5U
trans-1,3-Dichloropropene	--		5U	5U	5U	5U
Bromoform	--		5U	5U	5U	5U
4-Methyl-2-Pentanone	1,000		10U	10U	10U	10U
2-Hexanone	--		10U	10U	20UJ	10U
Tetrachloroethene	1,400		5U	5U	5U	5U
Toluene	1,500		5U	5U	5U	5U
1,1,2,2-Tetrachloroethane	600		5U	5U	5U	5U
Chlorobenzene	1,700		5U	5U	5U	5U
Ethylbenzene	5,500		5U	5U	5U	5U
Styrene	--		5U	5U	5U	5U
Xylenes (total)	1,200		5U	5U	5U	5U

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
R - Validator Qualifier - Rejected
µg/kg - Micrograms per kilogram
-- No NYSDEC RSCO available
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
ft bls - Feet below land surface
RE - Re-analyzed
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E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 16. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material) using the TCLP and/or SPLP, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	USEPA Regulatory Levels (µg/L)	**Designation:** **Sample Date:**	GS-1 05/04/2001 TCLP	GS-1 05/04/2001 SPLP	GS-2 05/04/2001 TCLP	GS-2 05/04/2001 SPLP
Chloromethane	--		10U	10U	10U	10U
Bromomethane	--		10U	10U	10U	10U
Vinyl Chloride	200		10U	10U	10U	10U
Chloroethane	--		10U	10U	10U	10U
Methylene Chloride	--		10U	10U	10U	10U
Acetone	--		5U	5U	5U	5U
Carbon Disulfide	--		10U	10U	10U	10U
Vinyl Acetate	--		5U	5U	5U	5U
1,1-Dichloroethene	700		5U	5U	5U	5U
1,1-Dichloroethane	--		5J	5U	5U	5U
cis-1,2-Dichloroethene	--		5U	5U	5U	5U
trans-1,2-Dichloroethene	--		5U	5U	5U	5U
Chloroform	6,000		5U	5U	5U	5U
1,2-Dichloroethane	--		10U	10U	10U	10U
2-Butanone	--		5U	5U	5U	5U
1,1,1-Trichloroethane	--		5U	5U	5U	5U
Carbon Tetrachloride	500		5U	5U	5U	5U
Bromodichloromethane	--		5U	5U	5U	5U
1,2-Dichloropropane	--		5U	5U	5U	5U
cis-1,3-Dichloropropene	--		59	57	3J	5
Trichloroethene	500		5U	5U	5U	5U
Dibromochloromethane	--		5U	5U	5U	5U
1,1,2-Trichloroethane	--		5U	5U	5U	5U
Benzene	500		5U	5U	5U	5U
trans-1,3-Dichloropropene	--		5U	5U	5U	5U
Bromoform	--		10U	10U	10U	10U
4-Methyl-2-Pentanone	--		10U	10U	10U	10U
2-Hexanone	--		5U	5U	5U	5U
Tetrachloroethene	700		68	67	5U	5U
Toluene	--		5U	5U	5U	5U
1,1,2,2-Tetrachloroethane	--		39J	33JS	5U	0.8JS
Chlorobenzene	100,000		38J	36J	5U	5U
Ethylbenzene	--		5U	5U	5U	5U
Styrene	--		520	470	5U	0.4J
Xylenes (total)	--					

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
S - Reported value was determined by the method of standard additions
T - Compound present in laboratory blank
R - Validator Qualifier - Rejected
µg/L- Micrograms per liter
-- No USEPA Regulatory Level available
USEPA - United States Environmental Protection Agency
TCLP - Toxicity Characteristic Leaching Procedure
SPLP - Synthetic Precipitation Leaching Procedure
GS/GSO - Green Material
GSP - Green Material Pipe
BWP - Wood Debris Characterization
TB - Test Pit
MB - Metal Box

Table 16. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material) using the TCLP and/or SPLP, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	USEPA Regulatory Levels (µg/L)	**Designation:** **Sample Date:**	TP-16 GS 04/05/2001 TCLP	TP-16 GSO 04/20/2001 TCLP	TP-16 BWP 04/25/2001 TCLP	TP-21-1 04/13/2001 TCLP
Chloromethane	--		100U	10R	10U	10UJ
Bromomethane	--		100U	10R	10U	10UJ
Vinyl Chloride	200		100U	10R	10U	10UJ
Chloroethane	--		100U	10R	10U	10UJ
Methylene Chloride	--		100U	10R	10U	10UJ
Acetone	--		100U	10R	10U	49UJ
Carbon Disulfide	--		7J	5R	5U	5UJ
Vinyl Acetate	--		100U	10R	10U	10UJ
1,1-Dichloroethene	700		50U	5R	5U	5UJ
1,1-Dichloroethane	--		50U	5R	5U	5UJ
cis-1,2-Dichloroethene	--		4J	5R	5U	5UJ
trans-1,2-Dichloroethene	--		50U	5R	5U	5UJ
Chloroform	6,000		50U	5R	5U	5UJ
1,2-Dichloroethane	--		50U	5R	5U	5UJ
2-Butanone	--		65J	10R	10U	10UJ
1,1,1-Trichloroethane	--		50U	5R	5U	5UJ
Carbon Tetrachloride	500		50U	5R	5U	5UJ
Bromodichloromethane	--		50U	5R	5U	5UJ
1,2-Dichloropropane	--		50U	5R	5U	5UJ
cis-1,3-Dichloropropene	--		5J	5R	5U	5UJ
Trichloroethene	500		70	0.7J	5U	1J
Dibromochloromethane	--		50U	5R	5U	5UJ
1,1,2-Trichloroethane	--		50U	5R	5U	5UJ
Benzene	500		1J	5R	5U	5UJ
trans-1,3-Dichloropropene	--		50U	5R	5U	5UJ
Bromoform	--		50U	5R	5U	5UJ
4-Methyl-2-Pentanone	--		100U	2J	10U	10UJ
2-Hexanone	--		100U	10R	10U	10UJ
Tetrachloroethene	700		50U	3J	5U	6J
Toluene	--		69	2J	5U	5UJ
1,1,2,2-Tetrachloroethane	--		50U	5R	5U	5UJ
Chlorobenzene	100,000		31J	5R	5U	5UJ
Ethylbenzene	--		48J	5R	5U	5UJ
Styrene	--		50U	5R	5U	5UJ
Xylenes (total)	--		690	0.6J	5U	5UJ

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte detected in laboratory blank
S - Reported value was determined by the method of standard additions
T - Compound present in laboratory blank
R - Validator Qualifier - Rejected
µg/L- Micrograms per liter
-- No USEPA Regulatory Level available
USEPA - United States Environmental Protection Agency
TCLP - Toxicity Characteristic Leaching Procedure
SPLP - Synthetic Precipitation Leaching Procedure
GS/GSO - Green Material
GSP - Green Material Pipe
BWP - Wood Debris Characterization
TB - Test Pit
MB - Metal Box

Table 16. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material) using the TCLP and/or SPLP, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	USEPA Regulatory Levels (µg/L)	**Designation:** **Sample Date:**	TP-23 GSP 04/17/2001 TCLP	TP-33 MB 05/02/2001
Chloromethane	--		10UJ	10UJ
Bromomethane	--		10UJ	10UJ
Vinyl Chloride	200		10UJ	10UJ
Chloroethane	--		10UJ	10UJ
Methylene Chloride	--		10UJ	10UJ
Acetone	--		47UJ	10UJ
Carbon Disulfide	--		5UJ	5UJ
Vinyl Acetate	--		10UJ	10UJ
1,1-Dichloroethene	700		5UJ	5UJ
1,1-Dichloroethane	--		5UJ	5UJ
cis-1,2-Dichloroethene	--		5UJ	5UJ
trans-1,2-Dichloroethene	--		5UJ	5UJ
Chloroform	6,000		5UJ	5UJ
1,2-Dichloroethane	--		5UJ	5UJ
2-Butanone	--		10UJ	10UJ
1,1,1-Trichloroethane	--		5UJ	5UJ
Carbon Tetrachloride	500		5UJ	5UJ
Bromodichloromethane	--		5UJ	5UJ
1,2-Dichloropropane	--		5UJ	5UJ
cis-1,3-Dichloropropene	--		5UJ	5UJ
Trichloroethene	500		5UJ	4J
Dibromochloromethane	--		5UJ	5UJ
1,1,2-Trichloroethane	--		5UJ	5UJ
Benzene	500		5UJ	5UJ
trans-1,3-Dichloropropene	--		5UJ	5UJ
Bromoform	--		5UJ	5UJ
4-Methyl-2-Pentanone	--		10UJ	10UJ
2-Hexanone	--		10UJ	10UJ
Tetrachloroethene	700		11J	5UJ
Toluene	--		5UJ	5UJ
1,1,2,2-Tetrachloroethane	--		5UJ	5UJ
Chlorobenzene	100,000		5UJ	5UJ
Ethylbenzene	--		5UJ	5UJ
Styrene	--		5UJ	5UJ
Xylenes (total)	--		5UJ	5UJ

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J - Estimated value
B - Analyte detected in laboratory blank
S - Reported value was determined by the method of standard additions
T - Compound present in laboratory blank
R - Validator Qualifier - Rejected
µg/L- Micrograms per liter
-- No USEPA Regulatory Level available
USEPA - United States Environmental Protection Agency
TCLP - Toxicity Characteristic Leaching Procedure
SPLP - Synthetic Precipitation Leaching Procedure
GS/GSO - Green Material
GSP - Green Material Pipe
BWP - Wood Debris Characterization
TB - Test Pit
MB - Metal Box

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	GS-1 5/4/01 --	GS-2 5/4/01 --	LP-C 5/1/01 --
1,2,4-Trichlorobenzene	3,400		330U	330U	330U
1,2-Dichlorobenzene	7,900		**1000000B**	330U	330U
1,3-Dichlorobenzene	1,600		**11000J**	330U	330U
1,4-Dichlorobenzene	8,500		**140000J**	330U	81J
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		330U	330U	330U
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		330U	330U	26J
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660U	660U	660U
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		330U	330U	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	330U
4-Methylphenol	900		330U	330U	20J
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		330U	330U	42J
Acenaphthylene	50,000		330U	330U	14J
Anthracene	50,000		330U	330U	86J
Benzo[a]anthracene	224		330U	330U	**260J**
Benzo[a]pyrene	61		330U	330U	**240J**
Benzo[b]fluoranthene	220		330U	330U	220J
Benzo[g,h,i]perylene	50,000		330U	330U	18J
Benzo[k]fluoranthene	220		330U	330U	**280J**
Benzoic acid	--		1600UR	1600UR	1600UR
Benzyl alcohol	--		330U	330U	330U
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	330UJ
Butylbenzyl phthalate	50,000		330U	330U	330UJ
Carbazole	--		330U	330U	38J
Chrysene	400		330U	330U	290J
Dibenzo[a,h]anthracene	14		330U	330U	330U
Dibenzofuran	6,200		330U	330U	20J
Diethyl phthalate	7,100		330U	330U	330U
Dimethyl phthalate	2,000		330U	330U	330U
Di-n-butyl phthalate	8,100		330U	330U	330U
Di-n-octyl phthalate	50,000		330U	330U	330U

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	GS-1 5/4/01 --	GS-2 5/4/01 --	LP-C 5/1/01 --
Fluoranthene	50,000		330U	330U	360J
Fluorene	50,000		330U	330U	29J
Hexachlorobenzene	41		330U	330U	330U
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330U	330U
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		330U	330U	26J
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		4900JB	330U	24J
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	330U	330U
N-Nitrosodiphenylamine	--		330U	330U	330U
Pentachlorophenol	1,000		1600U	1600U	1600U
Phenanthrene	50,000		4200J	330U	310J
Phenol	30		**93000J**	330U	330U
Pyrene	50,000		330U	330U	420J

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	LP-E 4/30/01 --	LP-W 4/30/01 --	ST-1 5/1/01 --
1,2,4-Trichlorobenzene	3,400		330U	330U	330U
1,2-Dichlorobenzene	7,900		330U	330U	330U
1,3-Dichlorobenzene	1,600		330U	330U	330U
1,4-Dichlorobenzene	8,500		770	130J	420J
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600UJ	1600U	1600U
2,4,6-Trichlorophenol	--		330UJ	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		330U	330U	330U
2,4-Dinitrophenol	200		1600UJ	1600U	1600U
2,4-Dinitrotoluene	--		330UJ	330U	330U
2,6-Dinitrotoluene	100		330UJ	330U	330U
2-Chloronaphthalene	--		330UJ	330U	330U
2-Chlorophenol	800		330UJ	330U	330U
2-Methylnaphthalene	36,400		160J	78J	160J
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600UJ	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660U	660U	660U
3-Nitroaniline	500		1600UJ	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600UJ	1600UJ	1600U
4-Bromophenyl phenyl ether	--		330U	330J	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330UJ	330U	330U
4-Methylphenol	900		330U	110J	61J
4-Nitroaniline	--		1600UJ	1600U	1600U
4-Nitrophenol	100		1600UJ	1600U	1600U
Acenaphthene	50,000		330UJ	24J	150J
Acenaphthylene	50,000		330UJ	330U	20J
Anthracene	50,000		95J	37J	160J
Benzo[a]anthracene	224		190J	50J	**410J**
Benzo[a]pyrene	61		**130J**	330U	**280J**
Benzo[b]fluoranthene	220		190J	330U	**230J**
Benzo[g,h,i]perylene	50,000		32J	330U	36J
Benzo[k]fluoranthene	220		210J	330U	**230J**
Benzoic acid	--		1600UR	70JR	1600UR
Benzyl alcohol	--		330U	330U	330U
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	330U
Butylbenzyl phthalate	50,000		330U	330U	330U
Carbazole	--		330U	100J	69J
Chrysene	400		270J	77J	**440J**
Dibenzo[a,h]anthracene	14		**24J**	330U	**30J**
Dibenzofuran	6,200		330UJ	38J	120J
Diethyl phthalate	7,100		330UJ	330U	330U
Dimethyl phthalate	2,000		330UJ	330U	330U
Di-n-butyl phthalate	8,100		330U	330U	330U
Di-n-octyl phthalate	50,000		330U	49J	330U

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	LP-E 4/30/01 --	LP-W 4/30/01 --	ST-1 5/1/01 --
Fluoranthene	50,000		290J	95J	520J
Fluorene	50,000		120J	330U	130J
Hexachlorobenzene	41		330UJ	330UJ	330U
Hexachlorobutadiene	--		330UJ	330U	330U
Hexachlorocyclopentadiene	--		330UJ	330UJ	330UJ
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		52J	330U	59J
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		100J	37J	73J
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	330U	330U
N-Nitrosodiphenylamine	--		330UJ	330UJ	330U
Pentachlorophenol	1,000		1600UJ	1600UJ	1600U
Phenanthrene	50,000		260J	310J	600J
Phenol	30		330U	330U	330U
Pyrene	50,000		290J	74J	700

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	TP-15 C1 4/17/01 6-8	TP-15 C1 4/17/01 8-10	TP-15 C2 4/17/01 6-8
1,2,4-Trichlorobenzene	3,400		330U	330U	330U
1,2-Dichlorobenzene	7,900		330U	330U	330U
1,3-Dichlorobenzene	1,600		330U	330U	330U
1,4-Dichlorobenzene	8,500		330U	330U	330U
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		330U	330U	330U
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		330U	330U	11J
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660U	660U	660U
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		330U	330U	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	330U
4-Methylphenol	900		330U	330U	330U
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		330U	330U	45J
Acenaphthylene	50,000		330U	330U	330U
Anthracene	50,000		2J	4J	140J
Benzo[a]anthracene	224		8J	8J	**290J**
Benzo[a]pyrene	61		7J	330U	**270J**
Benzo[b]fluoranthene	220		7J	330U	**250J**
Benzo[g,h,i]perylene	50,000		330U	330U	110J
Benzo[k]fluoranthene	220		6J	330UJ	210J
Benzoic acid	--		1600UR	1600UR	1600UR
Benzyl alcohol	--		330U	330UJ	330UJ
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	330U
Butylbenzyl phthalate	50,000		330U	330U	330U
Carbazole	--		330U	330U	50J
Chrysene	400		8J	5J	260J
Dibenzo[a,h]anthracene	14		330U	330U	**47J**
Dibenzofuran	6,200		330U	330U	34J
Diethyl phthalate	7,100		330U	3J	330U
Dimethyl phthalate	2,000		330U	330U	330U
Di-n-butyl phthalate	8,100		330U	330U	330U
Di-n-octyl phthalate	50,000		330U	330U	34J

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	TP-15 C1 4/17/01 6-8	TP-15 C1 4/17/01 8-10	TP-15 C2 4/17/01 6-8
Fluoranthene	50,000		11J	13J	580
Fluorene	50,000		330U	330U	60J
Hexachlorobenzene	41		330U	330U	330U
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330U	330U
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		330U	330U	110J
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		330U	330U	330U
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	330U	16J
N-Nitrosodiphenylamine	--		330U	330U	330U
Pentachlorophenol	1,000		1600U	1600U	1600U
Phenanthrene	50,000		7J	11J	430
Phenol	30		330U	330U	330U
Pyrene	50,000		9J	10J	420

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-15 C2 4/17/01 8-10	TP-16 FNE 4/17/01 5-7	TP-16 FNE 4/17/01 9-11
1,2,4-Trichlorobenzene	3,400		330U	330U	330U
1,2-Dichlorobenzene	7,900		330U	330U	330U
1,3-Dichlorobenzene	1,600		330U	330U	330U
1,4-Dichlorobenzene	8,500		330U	330U	330U
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		330U	330U	330U
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		220J	330U	330U
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660U	660U	660U
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		330U	330U	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	330U
4-Methylphenol	900		330U	330U	330U
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		730J	330U	6J
Acenaphthylene	50,000		28J	330U	330U
Anthracene	50,000		1900	3J	22J
Benzo[a]anthracene	224		**3300**	9J	67J
Benzo[a]pyrene	61		**2900**	330U	59J
Benzo[b]fluoranthene	220		**2700**	7J	54J
Benzo[g,h,i]perylene	50,000		1800	330U	21J
Benzo[k]fluoranthene	220		**2200**	7J	61J
Benzoic acid	--		1600UR	1600UR	1600UR
Benzyl alcohol	--		330U	330UJ	330UJ
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	330U
Butylbenzyl phthalate	50,000		330U	330U	330U
Carbazole	--		760J	330U	8J
Chrysene	400		**3000**	9J	61J
Dibenzo[a,h]anthracene	14		**650J**	330U	11J
Dibenzofuran	6,200		500J	330U	7J
Diethyl phthalate	7,100		330U	330J	330U
Dimethyl phthalate	2,000		330U	330U	330U
Di-n-butyl phthalate	8,100		330U	330U	330U
Di-n-octyl phthalate	50,000		500J	330U	330J

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-15 C2 4/17/01 8-10	TP-16 FNE 4/17/01 5-7	TP-16 FNE 4/17/01 9-11
Fluoranthene	50,000		6000	14J	130J
Fluorene	50,000		910	330U	9J
Hexachlorobenzene	41		330U	330U	330U
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330U	330U
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		1700	330U	24J
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		360J	330U	330U
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	330U	330U
N-Nitrosodiphenylamine	--		330U	330U	4J
Pentachlorophenol	1,000		1600U	1600U	1600U
Phenanthrene	50,000		5500	11J	66J
Phenol	30		330U	330U	330U
Pyrene	50,000		5000	11J	93J

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-16 FSW 4/17/01 5-7	TP-16 FSW 4/17/01 7-9	TP-16 PET 4/17/01 --
1,2,4-Trichlorobenzene	3,400		330U	330U	330U
1,2-Dichlorobenzene	7,900		330U	330U	330U
1,3-Dichlorobenzene	1,600		330U	330U	330U
1,4-Dichlorobenzene	8,500		330U	330U	330U
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		330U	330U	330U
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		330U	330U	6600J
2-Methylphenol	100		330U	330U	**510J**
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660U	660U	660U
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		330U	330U	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	330U
4-Methylphenol	900		330U	330U	510J
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		330U	330U	19000J
Acenaphthylene	50,000		330U	330U	1200J
Anthracene	50,000		3J	3J	49000
Benzo[a]anthracene	224		6J	8J	**92000**
Benzo[a]pyrene	61		330U	330U	**78000B**
Benzo[b]fluoranthene	220		330U	330U	**53000B**
Benzo[g,h,i]perylene	50,000		330U	330U	**64000**
Benzo[k]fluoranthene	220		330U	330U	**65000B**
Benzoic acid	--		1600UR	1600UR	1600UR
Benzyl alcohol	--		330UJ	330UJ	330UJ
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	330U
Butylbenzyl phthalate	50,000		330U	330U	330U
Carbazole	--		330U	330U	23000J
Chrysene	400		5J	6J	**82000**
Dibenzo[a,h]anthracene	14		330U	330U	**26000**
Dibenzofuran	6,200		330U	330U	**16000J**
Diethyl phthalate	7,100		330U	330U	150JB
Dimethyl phthalate	2,000		330U	330U	330U
Di-n-butyl phthalate	8,100		330U	330U	330U
Di-n-octyl phthalate	50,000		330U	330U	16000J

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-16 FSW 4/17/01 5-7	TP-16 FSW 4/17/01 7-9	TP-16 PET 4/17/01 --
Fluoranthene	50,000		8J	12J	**150000B**
Fluorene	50,000		330U	330U	26000
Hexachlorobenzene	41		330U	330U	330U
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330U	330U
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		330U	330U	**64000**
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		330U	330U	1400J
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	330U	330U
N-Nitrosodiphenylamine	--		330U	330U	330U
Pentachlorophenol	1,000		1600U	1600U	1600U
Phenanthrene	50,000		6J	9J	**140000**
Phenol	30		330U	330U	**340J**
Pyrene	50,000		8J	10J	**170000B**

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-16 4/17/01 12-13	TP-16 GS 4/5/01 --	TP-16-2 CLAY PIPE 4/10/01 --
1,2,4-Trichlorobenzene	3,400		330U	330U	2000J
1,2-Dichlorobenzene	7,900		330U	**440000**	50J
1,3-Dichlorobenzene	1,600		330U	**4400J**	330U
1,4-Dichlorobenzene	8,500		10J	**54000J**	46J
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		330U	330U	330U
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		220J	330U	800J
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660U	660U	660U
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		330U	330U	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	330U
4-Methylphenol	900		44J	330U	84J
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		590J	330U	2600J
Acenaphthylene	50,000		51J	330U	190J
Anthracene	50,000		1400	330U	5900
Benzo[a]anthracene	224		**3200**	330U	**10000**
Benzo[a]pyrene	61		**2800B**	330U	**8500B**
Benzo[b]fluoranthene	220		**2300B**	330U	**6800B**
Benzo[g,h,i]perylene	50,000		1800	330U	7700
Benzo[k]fluoranthene	220		**2000B**	330U	**6500B**
Benzoic acid	--		1600UR	1600UR	1600UR
Benzyl alcohol	--		330U	330U	330U
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	330U
Butylbenzyl phthalate	50,000		330U	330U	330U
Carbazole	--		730J	330U	3000J
Chrysene	400		**3000**	330U	**9300**
Dibenzo[a,h]anthracene	14		**800**	330U	**2700J**
Dibenzofuran	6,200		420J	330U	1700J
Diethyl phthalate	7,100		4B	330U	29JB
Dimethyl phthalate	2,000		330U	330U	330U
Di-n-butyl phthalate	8,100		330U	330U	330U
Di-n-octyl phthalate	50,000		420J	330U	2700J

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-16 4/17/01 12-13	TP-16 GS 4/5/01 --	TP-16-2 CLAY PIPE 4/10/01 --
Fluoranthene	50,000		4800B	330U	16000B
Fluorene	50,000		760J	330U	3000J
Hexachlorobenzene	41		330U	330U	330U
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330U	330U
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		2100	330U	**7400**
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		460J	2100J	330U
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	330U	330U
N-Nitrosodiphenylamine	--		330U	330U	330U
Pentachlorophenol	1,000		1600U	330U	1600U
Phenanthrene	50,000		4500	330U	18000
Phenol	30		12J	**67000J**	**60J**
Pyrene	50,000		5900B	330U	18000B

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
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CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-16-2 WP RE 4/11/01 --	TP-16-4 CB 4/11/01 --	TP-19-1 4/12/01 --
1,2,4-Trichlorobenzene	3,400		330U	120J	330U
1,2-Dichlorobenzene	7,900		330U	94J	330U
1,3-Dichlorobenzene	1,600		330U	330U	330U
1,4-Dichlorobenzene	8,500		330U	140J	330U
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	23J	330U
2,4-Dimethylphenol	--		620NJ	55J	330U
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		330U	67J	330U
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660UJ	660UJ	660U
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		330U	330U	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	330U
4-Methylphenol	900		**1200**	92J	330U
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		20J	100J	330U
Acenaphthylene	50,000		63J	130J	330U
Anthracene	50,000		140J	240J	330U
Benzo[a]anthracene	224		**590J**	**540J**	32J
Benzo[a]pyrene	61		**250JB**	**510JB**	26J
Benzo[b]fluoranthene	220		**530JB**	**630JB**	26J
Benzo[g,h,i]perylene	50,000		41J	130J	16J
Benzo[k]fluoranthene	220		**280JB**	**900JB**	28J
Benzoic acid	--		1600UR	1600UR	1600UR
Benzyl alcohol	--		330U	330U	330U
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	330U
Butylbenzyl phthalate	50,000		330UJ	330UJ	330U
Carbazole	--		62J	140J	330U
Chrysene	400		**1200J**	**680J**	32J
Dibenzo[a,h]anthracene	14		**21J**	330UJ	7J
Dibenzofuran	6,200		21J	91J	330U
Diethyl phthalate	7,100		29JB	330U	3JB
Dimethyl phthalate	2,000		21J	330U	330U
Di-n-butyl phthalate	8,100		330U	330U	330U
Di-n-octyl phthalate	50,000		100J	91J	330U

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-16-2 WP RE 4/11/01 --	TP-16-4 CB 4/11/01 --	TP-19-1 4/12/01 --
Fluoranthene	50,000		410JB	1400B	55J
Fluorene	50,000		19J	94J	330U
Hexachlorobenzene	41		330U	330U	330U
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330U	330U
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		64J	160J	16J
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		330U	330U	330U
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	120J	330U
N-Nitrosodiphenylamine	--		330U	330U	330U
Pentachlorophenol	1,000		860J	1600U	1600U
Phenanthrene	50,000		240J	1100	26J
Phenol	30		330U	15J	330U
Pyrene	50,000		660J	1200J	54J

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-19-2 RE 4/12/01 --	TP-21-1 4/13/01 --	TP-21-PE/SE 4/13/01 --
1,2,4-Trichlorobenzene	3,400		330U	330U	330U
1,2-Dichlorobenzene	7,900		15J	330U	330U
1,3-Dichlorobenzene	1,600		330U	330U	330U
1,4-Dichlorobenzene	8,500		160J	330U	330U
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		17J	58J	330U
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		260J	56J	330U
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660U	660U	660U
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		330U	330U	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	330U
4-Methylphenol	900		30J	120J	330U
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		19J	330U	330U
Acenaphthylene	50,000		42J	20J	5J
Anthracene	50,000		82J	42J	8J
Benzo[a]anthracene	224		200J	110J	22J
Benzo[a]pyrene	61		**370J**	**140JB**	20JB
Benzo[b]fluoranthene	220		**380**	220JB	17JB
Benzo[g,h,i]perylene	50,000		67J	15J	11J
Benzo[k]fluoranthene	220		**270J**	190JB	21JB
Benzoic acid	--		190JR	640JR	1600UR
Benzyl alcohol	--		330U	330U	330U
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	330U
Butylbenzyl phthalate	50,000		330U	330U	330U
Carbazole	--		17J	18J	3J
Chrysene	400		300J	150J	21J
Dibenzo[a,h]anthracene	14		**30J**	330U	4J
Dibenzofuran	6,200		34J	7J	330U
Diethyl phthalate	7,100		330U	30JB	4JB
Dimethyl phthalate	2,000		330U	350J	18J
Di-n-butyl phthalate	8,100		330U	330U	330U
Di-n-octyl phthalate	50,000		34J	330U	1J

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-19-2 RE 4/12/01 --	TP-21-1 4/13/01 --	TP-21-PE/SE 4/13/01 --
Fluoranthene	50,000		210J	210JB	28JB
Fluorene	50,000		18J	10J	2J
Hexachlorobenzene	41		330U	330U	330U
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330U	330U
Hexachloroethane	--		30J	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		76J	17J	12J
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		220J	27JB	2JB
Nitrobenzene	200		12J	330U	330U
N-Nitrosodi-n-propylamine	--		330U	120J	330U
N-Nitrosodiphenylamine	--		330U	330U	330U
Pentachlorophenol	1,000		1600U	1600U	1600U
Phenanthrene	50,000		260J	98J	15J
Phenol	30		330U	**1500**	4J
Pyrene	50,000		240J	120JB	23JB

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
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RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
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CS - Concrete Structure
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GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-21-PE/NW 4/13/01 --	TP-23 GSP 4/17/01 --	TP-23 MHPN 4/24/01 --
1,2,4-Trichlorobenzene	3,400		330U	330U	330U
1,2-Dichlorobenzene	7,900		330U	330U	330U
1,3-Dichlorobenzene	1,600		330U	330U	330U
1,4-Dichlorobenzene	8,500		330U	330U	330U
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		330U	330U	320J
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		330U	330U	6300J
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660U	660U	660U
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		330U	330U	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	330U
4-Methylphenol	900		330U	330U	770J
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		330U	330U	18000
Acenaphthylene	50,000		3J	330U	810J
Anthracene	50,000		2J	260J	30000
Benzo[a]anthracene	224		5J	**920J**	**49000**
Benzo[a]pyrene	61		6JB	**1000J**	**36000**
Benzo[b]fluoranthene	220		4JB	**1000J**	**37000**
Benzo[g,h,i]perylene	50,000		3J	1000J	25000
Benzo[k]fluoranthene	220		4JB	**900J**	**26000**
Benzoic acid	--		1600UR	1600UR	1500JR
Benzyl alcohol	--		330U	330U	330U
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	37000B
Butylbenzyl phthalate	50,000		330U	330J	980J
Carbazole	--		330U	330U	15000
Chrysene	400		5J	**1400J**	**52000**
Dibenzo[a,h]anthracene	14		1J	**350J**	**12000**
Dibenzofuran	6,200		330U	1400J	**13000**
Diethyl phthalate	7,100		23B	2600J	330U
Dimethyl phthalate	2,000		330U	1400J	1100J
Di-n-butyl phthalate	8,100		330U	330U	1800J
Di-n-octyl phthalate	50,000		330U	330U	330U

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	TP-21-PE/NW 4/13/01 --	TP-23 GSP 4/17/01 --	TP-23 MHPN 4/24/01 --
Fluoranthene	50,000		6JB	1800J	**56000**
Fluorene	50,000		330U	330U	20000
Hexachlorobenzene	41		330U	330U	330U
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330U	330U
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		3J	850J	**28000**
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		2JB	130J	13000
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	330U	330U
N-Nitrosodiphenylamine	--		330U	330U	330U
Pentachlorophenol	1,000		1600U	1600U	330U
Phenanthrene	50,000		3J	1100J	**89000J**
Phenol	30		3J	330U	**410J**
Pyrene	50,000		7JB	1700J	**65000**

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
W - West
C - Center
CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-23 MHPW 4/24/01 --	TP-23 MHPS 4/24/01 --	TP-31 SS 4/24/01 --
1,2,4-Trichlorobenzene	3,400		330U	330U	330U
1,2-Dichlorobenzene	7,900		330U	330U	330U
1,3-Dichlorobenzene	1,600		330U	330U	330U
1,4-Dichlorobenzene	8,500		330U	330U	400J
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		190J	330U	160J
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		130J	29J	140J
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660UJ	660U	660UJ
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600UJ
4-Bromophenyl phenyl ether	--		330U	330U	330UJ
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	330U
4-Methylphenol	900		500J	330U	230J
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		220J	81J	330U
Acenaphthylene	50,000		190J	130J	130J
Anthracene	50,000		680J	470	380J
Benzo[a]anthracene	224		**1900J**	**1200**	**1200J**
Benzo[a]pyrene	61		**2100**	**1300**	**1000J**
Benzo[b]fluoranthene	220		**2400**	**1600**	**910J**
Benzo[g,h,i]perylene	50,000		700J	590	1200J
Benzo[k]fluoranthene	220		**1800**	**940**	**880J**
Benzoic acid	--		1400JR	1500JR	660JR
Benzyl alcohol	--		330U	330U	330U
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		35000JB	1200B	330U
Butylbenzyl phthalate	50,000		310J	290J	330UJ
Carbazole	--		230J	210J	330UJ
Chrysene	400		**2700**	**1400**	**1200J**
Dibenzo[a,h]anthracene	14		**340J**	**300J**	**400J**
Dibenzofuran	6,200		87J	31J	120J
Diethyl phthalate	7,100		330U	330U	330U
Dimethyl phthalate	2,000		**2600**	990	330U
Di-n-butyl phthalate	8,100		5400	280J	330UJ
Di-n-octyl phthalate	50,000		330U	330U	330U

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-23 MHPW 4/24/01 --	TP-23 MHPS 4/24/01 --	TP-31 SS 4/24/01 --
Fluoranthene	50,000		2200	1300	1500J
Fluorene	50,000		180J	73J	330U
Hexachlorobenzene	41		330UJ	330U	330UJ
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330UJ	330UJ
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		930J	740	1000J
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		150J	30J	240J
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	330U	330U
N-Nitrosodiphenylamine	--		330U	330U	330UJ
Pentachlorophenol	1,000		330U	330U	330UJ
Phenanthrene	50,000		2600	990	980J
Phenol	30		**120J**	18J	330U
Pyrene	50,000		2500J	1600	1800J

U - Indicates that the compound was analyzed for but not detected
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B - Analyte Detected in Laboratory Blank
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SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	Designation: Sample Date: Sample Depth (ft bls):	TP-32 WP 4/25/01 --	TP-33 DW 5/8/01 --	TP-35 CS 5/16/01 --
1,2,4-Trichlorobenzene	3,400		330U	330U	330U
1,2-Dichlorobenzene	7,900		330U	330U	330U
1,3-Dichlorobenzene	1,600		330U	330U	330U
1,4-Dichlorobenzene	8,500		330U	330U	330U
2,2'-oxybis(1-Chloropropane)	--		330U	330U	330U
2,4,5-Trichlorophenol	100		1600U	1600U	1600U
2,4,6-Trichlorophenol	--		330U	330U	330U
2,4-Dichlorophenol	400		330U	330U	330U
2,4-Dimethylphenol	--		330U	330U	330U
2,4-Dinitrophenol	200		1600U	1600U	1600U
2,4-Dinitrotoluene	--		330U	330U	330U
2,6-Dinitrotoluene	100		330U	330U	330U
2-Chloronaphthalene	--		330U	330U	330U
2-Chlorophenol	800		330U	330U	330U
2-Methylnaphthalene	36,400		86J	330U	330U
2-Methylphenol	100		330U	330U	330U
2-Nitroaniline	430		1600U	1600U	1600U
2-Nitrophenol	330		330U	330U	330U
3,3'-Dichlorobenzidine	--		660U	330U	330U
3-Nitroaniline	500		1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	--		1600U	1600U	1600U
4-Bromophenyl phenyl ether	--		330U	330U	330U
4-Chloro-3-methylphenol	240		330U	330U	330U
4-Chloroaniline	220		330U	330U	330U
4-Chlorophenyl phenyl ether	--		330U	330U	21J
4-Methylphenol	900		130J	330U	330U
4-Nitroaniline	--		1600U	1600U	1600U
4-Nitrophenol	100		1600U	1600U	1600U
Acenaphthene	50,000		300J	330U	21J
Acenaphthylene	50,000		100J	330U	330U
Anthracene	50,000		740	330U	59J
Benzo[a]anthracene	224		**1500**	7J	200J
Benzo[a]pyrene	61		**1200**	330U	**180J**
Benzo[b]fluoranthene	220		**1000**	330U	150J
Benzo[g,h,i]perylene	50,000		1100	330U	140J
Benzo[k]fluoranthene	220		**1100**	330U	180J
Benzoic acid	--		1600UR	1600UR	1600UR
Benzyl alcohol	--		330U	330U	170J
bis(2-Chloroethoxy)methane	--		330U	330U	330U
bis(2-Chloroethyl) ether	--		330U	330U	330U
bis(2-Ethylhexyl) phthalate	50,000		330U	330U	330U
Butylbenzyl phthalate	50,000		34J	330U	330U
Carbazole	--		300J	330U	22J
Chrysene	400		**1500**	5J	200J
Dibenzo[a,h]anthracene	14		**500**	330U	**49J**
Dibenzofuran	6,200		190J	330U	8J
Diethyl phthalate	7,100		8J	330U	330U
Dimethyl phthalate	2,000		330U	330U	330U
Di-n-butyl phthalate	8,100		330U	330U	330U
Di-n-octyl phthalate	50,000		330U	330U	330U

Table 17. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:** **Sample Depth (ft bls):**	TP-32 WP 4/25/01 --	TP-33 DW 5/8/01 --	TP-35 CS 5/16/01 --
Fluoranthene	50,000		1800	10J	370J
Fluorene	50,000		330J	330U	330U
Hexachlorobenzene	41		330U	330U	330U
Hexachlorobutadiene	--		330U	330U	330U
Hexachlorocyclopentadiene	--		330U	330U	330U
Hexachloroethane	--		330U	330U	330U
Indeno[1,2,3-cd]pyrene	3,200		1200	330U	130J
Isophorone	4,400		330U	330U	330U
Naphthalene	13,000		120J	330U	330U
Nitrobenzene	200		330U	330U	330U
N-Nitrosodi-n-propylamine	--		330U	330U	330U
N-Nitrosodiphenylamine	--		330U	330U	330U
Pentachlorophenol	1,000		1600U	1600U	1600U
Phenanthrene	50,000		2100	330U	220J
Phenol	30		330U	330U	330U
Pyrene	50,000		2400	8J	390

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Analyte Detected in Laboratory Blank
D - Identifies all compounds in an analysis at a secondary dilution factor
N - Spike sample recovery not within control limits
NA - Not Analyzed
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
-- - No NYSDEC RSCO available

E - East
W - West
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CS - Concrete Structure
DW - Dry Well
GS - Green Material
GSP - Green Material Pipe
LP - Leaching Pool
ST - Septic Tank
SE - Southeast
NW - Northwest
NE - Northeast
SW - Southwest

TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
MHPN - Manhole Pipe North
MHPW - Manhole Pipe West
MHPS - Manhole Pipe South
SS - Sludge - Like Sample
PE - Post Excavation
PET - Black Wood Debris
CB - Catch Basin

Note:
Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 18. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material) Using the TCLP, and/or SPLP
Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	USEPA Regulatory Levels (µg/L)	**Designation:** **Sample Date:**	GS-1 5/4/01 TCLP	GS-1 5/4/01 SPLP	GS-2 5/4/01 TCLP	GS-2 5/4/01 SPLP	TP-16 BWP 04/25/2001 TCLP	TP-16 GS 04/20/2001 TCLP
1,2,4-Trichlorobenzene	-		10U	10U	10U	10U	10U	10UJ
1,2-Dichlorobenzene	-		570	580	4J	10U	10U	10UJ
1,3-Dichlorobenzene	-		77J	68J	10U	10U	10U	10UJ
1,4-Dichlorobenzene	7,500		10U	10U	2J	10U	10U	10UJ
2,2'-oxybis(1-Chloropropane)	-		10U	10U	10U	10U	10U	10UJ
2,4,5-Trichlorophenol	400,000		50U	50U	50U	50U	50U	50UJ
2,4,6-Trichlorophenol	2,000		10U	10U	10U	10U	10U	10UJ
2,4-Dichlorophenol	-		10U	10U	10U	10U	10U	10UJ
2,4-Dimethylphenol	-		10U	10U	10U	10U	10U	10UJ
2,4-Dinitrophenol	-		50U	50U	50U	50U	50U	50UJ
2,4-Dinitrotoluene	130		10U	10U	10U	10U	10U	10UJ
2,6-Dinitrotoluene	-		10U	10U	10U	10U	10U	10UJ
2-Chloronaphthalene	-		10U	10U	10U	10U	10U	10UJ
2-Chlorophenol	-		10U	10U	10U	10U	10U	10UJ
2-Methylnaphthalene	-		10U	10U	10U	10U	8J	0.7J
2-Methylphenol	-		10U	10U	10U	10U	10U	10UJ
2-Nitroaniline	-		50U	50U	50U	50U	50U	50UJ
2-Nitrophenol	-		10U	10U	10U	10U	10U	10UJ
3,3'-Dichlorobenzidine	-		20U	20U	20U	20U	20U	20UJ
3-Nitroaniline	-		50U	50U	50U	50U	50U	50UJ
4,6-Dinitro-2-methylphenol	-		50U	50U	50U	50U	50U	50UJ
4-Bromophenyl phenyl ether	-		10U	10U	10U	10U	10U	10UJ
4-Chloro-3-methylphenol	-		10U	10U	10U	10U	10U	10UJ
4-Chloroaniline	-		10U	10U	10U	10U	10U	10UJ
4-Chlorophenyl phenyl ether	-		10U	10U	10U	10U	10U	10UJ
4-Methylphenol	-		10U	10U	10U	10U	10U	10UJ
4-Nitroaniline	-		50U	50U	50U	50U	50U	50UJ
4-Nitrophenol	-		50U	50U	50U	50U	50U	50UJ
Acenaphthene	-		10U	10U	10U	10U	6J	10UJ
Acenaphthylene	-		10U	10U	10U	10U	9J	10UJ
Anthracene	-		10U	10U	10U	10U	3J	10UJ
Benzo[a]anthracene	-		10U	10U	10U	10U	10U	10UJ
Benzo[a]pyrene	-		10U	10U	10U	10U	10U	10UJ
Benzo[b]fluoranthene	-		10U	10U	10U	10U	10U	10UJ
Benzo[g,h,i]perylene	-		10U	10U	10U	10U	10U	10UJ
Benzo[k]fluoranthene	-		10U	10U	10U	10U	10U	10UJ
Benzoic acid	-		160JR	50JR	50UR	50UR	50UR	7JR

Table 18. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Solid Material) Using the TCLP, and/or SPLP
Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	USEPA Regulatory Levels (µg/L)	Designation: Sample Date:	GS-1 5/4/01 TCLP	GS-1 5/4/01 SPLP	GS-2 5/4/01 TCLP	GS-2 5/4/01 SPLP	TP-16 BWP 04/25/2001 TCLP	TP-16 GS 04/20/2001 TCLP
Benzyl alcohol	-		10U	10U	10U	10U	10U	10UJ
bis(2-Chloroethoxy)methane	-		10U	10U	10U	10U	10U	10UJ
bis(2-Chloroethyl) ether	-		10U	10U	10U	10U	10U	10UJ
bis(2-Ethylhexyl) phthalate	-		10U	10U	10U	10U	10U	10UJ
Butylbenzyl phthalate	-		10U	10U	10U	10U	10U	10UJ
Carbazole	-		10U	10U	10U	10U	5J	10UJ
Chrysene	-		10U	10U	10U	10U	10U	10UJ
Dibenzo[a,h]anthracene	-		10U	10U	10U	10U	10U	10UJ
Dibenzofuran	-		10U	10U	10U	10U	3J	10UJ
Diethyl phthalate	-		10U	10U	10U	10U	10U	10UJ
Dimethyl phthalate	-		10U	10U	10U	10U	10U	10UJ
Di-n-butyl phthalate	-		10U	10U	10U	0.4J	10U	10UJ
Di-n-octyl phthalate	-		10U	10U	10U	10U	10U	10UJ
Fluoranthene	-		10U	10U	10U	10U	3J	10UJ
Fluorene	-		10U	10U	10U	10U	11J	10UJ
Hexachlorobenzene	130		10U	10U	10U	10U	10U	10UJ
Hexachlorobutadiene	-		10U	10U	10U	10U	10U	10UJ
Hexachlorocyclopentadiene	-		10U	10U	10U	10U	10U	10UJ
Hexachloroethane	-		10U	10U	10U	10U	10U	10UJ
Indeno[1,2,3-cd]pyrene	-		10U	10U	10U	10U	10U	10UJ
Isophorone	-		10U	10U	10U	10U	10U	10UJ
Naphthalene	-		3JT	2J	10U	10U	4J	10UJ
Nitrobenzene	2,000		10U	10U	10U	10U	10U	10UJ
N-Nitrosodi-n-propylamine	-		10U	10U	10U	10U	10U	10UJ
N-Nitrosodiphenylamine	-		10U	10U	10U	10U	10U	10UJ
Pentachlorophenol	100,000		50U	50U	50U	50U	50U	50UJ
Phenanthrene	-		10U	10U	10U	10U	11J	10UJ
Phenol	-		430	570	10U	2J	10U	10UJ
Pyrene	-		10U	10U	10U	10U	2J	2J
Pyridine	5,000		NA	NA	NA	NA	NA	10UJ

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
R - Validator Qualifier - Rejected
- No USEPA regulatory level available
µg/L - Micrograms per liter
NA - Not analyzed
TCLP - Toxicity Characteristic Leaching Procedure
SPLP - Synthetic Precipitation Leaching Procedure
GS - Green Material
TP - Test Pit
BWP - Wood Debris Characterization
USEPA - United States Environmental Protection Agency

Table 19. Summary of Target Analyte List Metals and Cyanide Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	(1)	(2)	Designation: / Sample Date: / Sample Depth (ft bls):	FP-SB-2 9/30/99 8-10	FP-SB-3 9/30/99 6-8	GS-1 5/4/01 --	GS-2 5/4/01 --	LP-C 5/5/01 --	LP-E 5/5/01 --	LP-W 5/5/01 --	ST-1 5/5/01 --
Aluminum	--	33,000		2,500	2,700	1,110	1,340	2540	5410	9720	10100
Antimony	--	--		1.4U	1.5U	1,340	1,130	3.0UJ	3.2UJ	2.3UJ	12.5U
Arsenic	7.5	12		2.1U	2.2U	**16.7B**	12.3	**15.2**	3.9	2.3U	12.5U
Barium	300	600		22	39	85.9B	**309**	255	120	207	**932**
Beryllium	0.16	1.75		0.2U	0.2U	0.65U	0.62U	1.5U	1.6U	1.2U	6.3U
Cadmium	1	1		0.33U	0.34U	**75.8**	**12.3B**	**14.8**	**33.6**	**4.5**	**126**
Calcium	--	35,000		570	930	15,000	8,550	9280	3910	4080	21000
Chromium	10	40		**24**	**13**	**33,900**	**19,000**	**491**	**160**	**217**	**566**
Cobalt	30	60		2.8	5.1	**318**	**30.8**	3.0U	13.3B	7.1B	12.5U
Copper	25	50		5.4	8.4	23.8B	13.9B	**314**	141	**44.6**	**767**
Cyanide, Total	--	--		NA	NA	43.8	171	0.83U	0.86U	0.65U	1.71U
Hexavalent Chromium	--	--		NA	NA	5,300	639	NA	NA	NA	NA
Iron	2,000	550,000		**7,400**	**8,000**	**2,210**	**2,970**	**11800**	**14500**	**10200**	**15300**
Lead	500	500		3	3.4	**1,760**	141	185	108.0	49.7	384
Magnesium	--	5,000		1,000	1,200	**7,870**	**8,050**	2410	1470B	2000	2430B
Manganese	--	5,000		110	230	74.0	57.3B	88.0	157	94.4	285
Mercury	0.1	0.2		0.036U	0.037U	**0.14**	**0.14**	**0.16NJ**	**0.98**	0.071	**4.7NJ**
Nickel	13	25		5.8	7.5	7.6B	32	**55.9**	**36.8**	**99.8**	**44.5B**
Potassium	--	43,000		680	940	12,500	3,480	397B	818B	1230	626U
Selenium	2	3.9		3U	3.1U	6.4U	6.1U	**4.6J**	1.8J	1.2U	6.3U
Silver	--	--		1.3U	1.4U	1.3U	1.2U	4.2J	2.4B	1.2U	14J
Sodium	--	8,000		210U	220U	235B	158B	148U	160U	163B	626U
Thallium	--	--		1.1U	1.1U	11.8U	11.3U	4.4U	4.8B	3.5U	18.8U
Vanadium	150	300		8.3	9.6	48	27.5	10.4B	14.8B	16.9	7.7B
Zinc	20	50		20U	20U	**33,800**	**26,000**	**634**	**993**	**1360**	**2180**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

U - Indicates that the compound was analyzed for but not detected

B - Indicates analyte result between instrument detection limit and the contract required detection limit

J - Validator Qualifier - Estimated Value

N - Spiked sample recovery not within control limits

NYSDEC RSCOs New York State Department of Environmental Conservation Recommended Soil Cleanup Objectives

(1) - NYSDEC RSCOs or Eastern USA Background Concentrations in mg/kg

(2) - Eastern USA Background Concentrations in mg/kg

-- No NYSDEC RSCO or Eastern USA Background Concentration

NA - Not Analyzed

* Duplicate analysis not within control limits

E - East	TP - Test Pit
W - West	C1 - Cradle 1
C - Center	C2 - Cradle 2
CS - Concrete Structure	FNE - Floor Northeast
DW - Dry Well	FSW - Floor Southwest
GS - Green Material	MHPN - Manhole Pipe North
GSP - Green Material Pipe	MHPW - Manhole Pipe West
LP - Leaching Pool	MHPS - Manhole Pipe South
ST - Septic Tank	SS - Sludge - Like Sample
SE - Southeast	PE - Post Excavation
NW - Northwest	PET - Black Wood Debris
NE - Northeast	CB - Catch Basin
SW - Southwest	

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 19. Summary of Target Analyte List Metals and Cyanide Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	(1)	(2)	TP-15 C1 4/17/01 6-8	TP-15 C1 4/17/01 8-10	TP-15 C2 4/17/01 6-8	TP-15 C2 4/17/01 8-10	TP-16/FNE 4/17/01 5-7	TP-16/FNE 4/17/01 9-11	TP-16/FSW 4/17/01 5-7	TP-16/FSW 4/17/01 7-9	TP-16/PET 4/10/01 --	TP-16 4/10/01 12-13
Aluminum	--	33,000	2160	2520	2110	2220	2510	888	4420	4350	4500	12000
Antimony	--	--	2.0U	2.1U	2.0U	2.1U	2.1U	2.0U	2.0U	2.0U	2.8U	2.2U
Arsenic	7.5	12	2.0U	2.1U	2.0U	2.1U	2.1U	2.0U	2.1J	2.0U	**13.1**	6.3
Barium	300	600	19.9B	29.1B	18.5B	29.5B	20.7B	19.9B	32.7B	34.8B	165	81.4
Beryllium	0.16	1.75	1.0U	1.1U	0.99U	1.1U	1.0U	1.0U	0.98U	1.0U	1.4U	1.1U
Cadmium	1	1	1.0U	1.1U	0.99U	1.1U	1.0U	1.0U	0.98U	1.0U	**3.3**	**2.7**
Calcium	--	35,000	400B	1040B	460B	790B	622B	384B	1580	1680	29800	3300
Chromium	10	40	**10.2**	**11.6**	7.6	**10.6**	**12.7**	7.1	**23.4**	**16.9**	**62.6**	**33.5**
Cobalt	30	60	2.0U	2.3B	2.0U	2.1U	3.2B	18.2	4.0B	6.3B	3.8B	7.4B
Copper	25	50	4.8B	8.1	4.2B	6.8	11.6	4.7B	12.4	10.1	**67.2**	**28**
Cyanide, Total	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	--	--	0.231	0.239U	0.256	0.247U	0.240U	1.53	0.232U	0.242U	NA	0.240U
Iron	2,000	550,000	**7040**	**9690**	**7950**	**9290**	**7800**	**4660**	**12900**	**12000**	**17800**	**19700**
Lead	500	500	2.9	2.7	1.9	3.3	7	1.6	6.2	4	104	33.3
Magnesium	--	5,000	954B	1310	912B	1050B	1050	433B	1740	2000	2870	2640
Manganese	--	5,000	74.8	96.4	70.9	96.7	109	197	176	314	239J	260J
Mercury	0.1	0.2	0.0053U	0.0071U	0.0047U	0.0053U	0.02	0.0047U	0.0066U	0.0052U	**0.19**	0.066
Nickel	13	25	5.4B	7.0B	4.7B	5.4B	8.0B	7.7B	10.1	11.9	**16.7**	**23.2**
Potassium	--	43,000	828B	1200	866B	1010B	878B	387B	1440	1780	822B	1560
Selenium	2	3.9	1.0U	1.1U	0.99U	1.1U	1.0U	1.0U	0.98U	1.0U	1.4UJ	1.1UJ
Silver	--	--	1.0U	1.1U	0.99U	1.1U	1.0U	1.0U	0.98U	1.0U	1.4U	1.1U
Sodium	--	8,000	111B	107U	98.6U	107U	103U	103U	97.8U	103U	197B	108U
Thallium	--	--	2.0U	2.1U	2.0U	2.1U	2.1U	2.0U	2.0U	2.0U	2.8U	2.2U
Vanadium	150	300	8.1B	9.9B	7.8B	9.1B	9.0B	4.8B	15.3	16.4	16.7	23.8
Zinc	20	50	13.3	16.8	13.4	**40.3**	19.7	16.1	**38.4**	**29.9**	**591**	**106**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

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B - Indicates analyte result between instrument detection limit and the contract required detection limit

J - Validator Qualifier - Estimated Value

N - Spiked sample recovery not within control limits

NYSDEC RSCOs - New York State Department of Environmental Conservatio Recommended Soil Cleanup Objectives

(1) - NYSDEC RSCOs or Eastern USA Background Concentrations in mg/kg

(2) - Eastern USA Background Concentrations in mg/kg

-- No NYSDEC RSCO or Eastern USA Background Concentration

NA - Not Analyzed

* Duplicate analysis not within control limits

E - East	TP - Test Pit
W - West	C1 - Cradle 1
C - Center	C2 - Cradle 2
CS - Concrete Structure	FNE - Floor Northeast
DW - Dry Well	FSW - Floor Southwest
GS - Green Material	MHPN - Manhole Pipe North
GSP - Green Material Pipe	MHPW - Manhole Pipe West
LP - Leaching Pool	MHPS - Manhole Pipe South
ST - Septic Tank	SS - Sludge - Like Sample
SE - Southeast	PE - Post Excavation
NW - Northwest	PET - Black Wood Debris
NE - Northeast	CB - Catch Basin
SW - Southwest	

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 19. Summary of Target Analyte List Metals and Cyanide Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	(1)	(2)	TP-16-2 CLAY PIPE 4/10/01 --	TP-16-3WP 4/11/01 --	TP-16-4CB 4/11/01 --	TP-16GS 4/10/01 --	TP-16-PE-SOUTH 4/6/01 --	TP-16-PE-WEST 4/6/01 --	TP-16 PE NORTH 4/6/01 --	TP-16 PIPE BOTTOM 4/6/01 --
Aluminum	--	33,000	3750	848	3110	1430	3830	3560	4070	3920
Antimony	--	--	2.7U	3.1UJ	2.7U	4500	1.2B	0.86B	5.2B	1.5B
Arsenic	7.5	12	3.5	3.1U	3.9	23.2U	3.1	1.0B	3.2	1.8B
Barium	300	600	73.1	**421**	258	114B	32.0B	26.3B	31.6B	33.6B
Beryllium	0.16	1.75	1.3U	1.6U	1.4U	1.3U	**0.21B**	**0.19B**	**0.23B**	**0.23B**
Cadmium	1	1	1.3U	**22.5**	**13.6**	**105**	**12.2**	0.060U	**3.1**	**15.5**
Calcium	--	35,000	3080	**81700**	**37600**	12200B	4400	2600	3490	3640
Chromium	10	40	**32.7**	**632**	**39.8**	**25200**	**29.8**	**240**	**318**	**37.1**
Cobalt	30	60	5.1B	**50.1**	4.1B	**179B**	4.1B	3.6B	4.8B	4.7B
Copper	25	50	**63**	**82.9**	**990**	20.8B	10.9	6.4	13.9	11.6
Cyanide, Total	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	--	--	0.290U	0.320U	0.290U	855	0.222 U	0.874	1.09	0.252 U
Iron	2,000	550,000	**13900**	**4420**	**49200**	**3670**	**9500**	**9060**	**9500**	**10200**
Lead	500	500	14.8	**2890**	182	**10200**	18.4	4.6	36.4	8.9
Magnesium	--	5,000	1570	3290	**21900**	**6650B**	1540	1310	1390	1670
Manganese	--	5,000	128J	53.7J	335J	73.6B	190	153	154	234
Mercury	**0.1**	0.2	0.082	**0.22**	**0.5**	**0.2**	0.032	0.0055U	0.034	0.033
Nickel	13	25	12.4	6.0B	**28.9**	12.9B	12.1	8	10.5	**13.2**
Potassium	--	43,000	1210B	156U	600B	6490B	1130	958B	941B	1370
Selenium	2	3.9	1.3UJ	1.6UJ	1.4U	**26.6B**	0.50U	0.52U	0.50U	0.48U
Silver	--	--	1.3U	1.6U	19.1J	2.6U	0.77U	0.079U	0.077U	0.074U
Sodium	--	8,000	134U	156U	529B	215B	45.8B	50.2B	46.1B	56.4B
Thallium	--	--	2.7U	3.1U	2.7U	27.8U	1.6U	1.6U	1.6U	1.5U
Vanadium	150	300	13.3B	19.6	25	45.6B	12.4	10.9	13.5	13.6
Zinc	20	50	141	**4200**	**1780**	**81300**	**82.8**	19.2	**915**	**75.1**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

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N - Spiked sample recovery not within control limits

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(1) - NYSDEC RSCOs or Eastern USA Background Concentrations in mg/kg

(2) - Eastern USA Background Concentrations in mg/kg

-- No NYSDEC RSCO or Eastern USA Background Concentration

NA - Not Analyzed

* Duplicate analysis not within control limits

E - East	TP - Test Pit
W - West	C1 - Cradle 1
C - Center	C2 - Cradle 2
CS - Concrete Structure	FNE - Floor Northeast
DW - Dry Well	FSW - Floor Southwest
GS - Green Material	MHPN - Manhole Pipe North
GSP - Green Material Pipe	MHPW - Manhole Pipe West
LP - Leaching Pool	MHPS - Manhole Pipe South
ST - Septic Tank	SS - Sludge - Like Sample
SE - Southeast	PE - Post Excavation
NW - Northwest	PET - Black Wood Debris
NE - Northeast	CB - Catch Basin
SW - Southwest	

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 19. Summary of Target Analyte List Metals and Cyanide Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	(1)	(2)	TP-19-1 4/11/01 --	TP-19-2 4/11/01 --	TP-21-PE/NW 4/13/01 --	TP-21-PE/SE 4/13/01 --	TP-21-1 4/13/01 --	TP-23/GSP 4/17/01 --	TP-23/MERC 4/17/01 --	TP-23/MHPN 4/24/01 --	TP-23/MHPW 4/24/01 --	TP-23/MHPS 4/24/01 --
Aluminum	--	33,000	1900	4820	4820*	1220*	1240*	5040	20.0U	2810	7710	1710
Antimony	--	--	2.0U	504	5.3BNJ	2.1UNJ	1.9UNJ	4.6B	1.0U	8.1B	3.8U	2.9B
Arsenic	7.5	12	2.0U	**13.2**	4.3J	2.1UNJ	1.9UNJ	**7.9J**	1.0U	6.5	**8.3**	**10.2**
Barium	300	600	12.1B	**1340**	60.5B	14.0B	17.7B	88.1	0.50U	31.9B	**331**	18.1B
Beryllium	0.16	1.75	0.99U	1.1U	1.6U	1.0U	0.94U	1.2U	0.50U	1.1U	1.9U	0.85U
Cadmium	1	1	**1.7**	**35.6**	**31.9J**	1.0UJ	0.94UJ	**29**	0.50U	**18.7**	**74.7**	**6.8**
Calcium	--	35,000	398B	11900	**41200*J**	656B*J	343B*J	4690	20.0U	5840	6180	**111000**
Chromium	10	40	6.7	**374**	**3240J**	7.2*J	5.0*J	**4610**	0.50U	**3720**	**20200**	**87.4**
Cobalt	30	60	2.9B	21.3	16.7	3.0B	2.0B	21.6	1.0U	22.9	**40.3**	3.2B
Copper	25	50	4.6B	**831**	**28.8***	6.3*	3.4B*	**64.9**	1.0U	**173**	**109**	**49.9**
Cyanide, Total	--	--	NA	NA	0.210U	0.210U	12.8	NA	NA	16.7	4.04	0.580U
Hexavalent Chromium	--	--	0.210U	0.290U	0.210U	0.210U	12.8	15.9	NA	NA	NA	NA
Iron	2,000	550,000	**6610**	**74100**	**16000***	**8350***	**5360***	**24600**	4.9B	**13600***	**41200***	**13400***
Lead	500	500	32.4	**986**	379	1.7	1	**1600**	0.30U	**1080***	**3390***	**112***
Magnesium	--	5,000	678B	4900	**21600**	639B	629B	3770	20.0U	3590	4870	**69300**
Manganese	--	5,000	145J	1460J	296*	165*	80.3*	353	0.50U	92.4*	344*	158*
Mercury	0.1	0.2	0.0093	0.081	0.020B	0.0059U	0.0037U	**0.84**	**1040000**	**189**	**4.2**	**60**
Nickel	13	25	6.2B	**223**	197	6.9B	3.1B	**28.8**	1.0U	**57**	**41.6**	**23.6**
Potassium	--	43,000	415B	902B	2630J	515BJ	460BJ	964B	50.0U	2198	1760B	421B
Selenium	2	3.9	0.99U	1.1U	1.6UJ	1.0UJ	0.94UJ	1.7	0.50U	1.4	1.9U	0.85U
Silver	--	--	0.99U	1.1U	1.6U	1.0U	0.94U	1.2U	0.50U	1.1B	1.9U	0.85U
Sodium	--	8,000	99.2U	157B	157U	104U	93.8U	115U	145B	108U	419B	193B
Thallium	--	--	2.0U	2.8B	3.1U	2.1UN	1.9UN	2.3U	1.5U	2.2U	3.8U	1.7U
Vanadium	150	300	5.9B	16	27.2	6.2B	5.3B	37.6	0.50U	39.8	53	9.5
Zinc	20	50	**714**	**2020**	**7910**	**123**	10.4	**11,000**	2.0U	**21300***	**32000***	**10600***

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(1) - NYSDEC RSCOs or Eastern USA Background Concentrations in mg/kg

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NA - Not Analyzed

* Duplicate analysis not within control limits

E - East

W - West

C - Center

CS - Concrete Structure

DW - Dry Well

GS - Green Material

GSP - Green Material Pipe

LP - Leaching Pool

ST - Septic Tank

SE - Southeast

NW - Northwest

NE - Northeast

SW - Southwest

TP - Test Pit

C1 - Cradle 1

C2 - Cradle 2

FNE - Floor Northeast

FSW - Floor Southwest

MHPN - Manhole Pipe North

MHPW - Manhole Pipe West

MHPS - Manhole Pipe South

SS - Sludge - Like Sample

PE - Post Excavation

PET - Black Wood Debris

CB - Catch Basin

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 19. Summary of Target Analyte List Metals and Cyanide Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/kg)	(1)	(2)	TP-31/SS 4/24/01	TP-32 WP 4/25/01	TP-33 DW 5/8/01	TP-35 CS 5/16/01	TP-36 PIPE 5/10/01
Aluminum	--	33,000	24900	4350	3260	4540	1920
Antimony	--	--	9.0B	2.0J	2.0U	2.0UJ	36.4U
Arsenic	7.5	12	**11.4**	4.0	2.0U	2.0U	36.4U
Barium	300	600	**546**	57.2	34.6	29.4	66.4B
Beryllium	0.16	1.75	2.7U	**1.0**	1.0U	1.0U	**18.2**
Cadmium	1	1	**100**	1.0	1.0U	1.0U	**192**
Calcium	--	35,000	22900	10900	1900	4260	**86100**
Chromium	10	40	**458**	**38.1**	20.5U	**13.6**	**75.0**
Cobalt	30	60	8.6B	3.4	2.6	3.2	**36.4U**
Copper	25	50	**1620**	**16**	8.9	22.1	**57.5B**
Cyanide, Total	--	--	1.59U	0.550U	0.63U	0.57UJ	NA
Hexavalent Chromium	--	--	NA	1.0	NA	NA	NA
Iron	2,000	550,000	**35400***	**8950**	**10700**	**9430**	**190000**
Lead	500	500	435*	40.8	7.7	15.6	**1180**
Magnesium	--	5,000	**5190**	1580	1270	2890	**13100B**
Manganese	--	5,000	288*	150.0	64.2	106	989
Mercury	0.1	0.2	**4**	0.054	0.004U	0.043	**1.1**
Nickel	13	25	**146**	**14.3**	8.3	10	**39.2B**
Potassium	--	43,000	1090B	784.0	1110	927	1820U
Selenium	2	3.9	**3.9**	1.0	1.0U	1.0UJ	18.2U
Silver	--	--	23	1.8	1.0U	1.0U	18.2U
Sodium	--	8,000	271U	102.0	100U	100U	2600B
Thallium	--	--	5.4U	3.0	2.0U	2.0U	54.5U
Vanadium	150	300	39.7	10.1	13.9	14.7	37.1B
Zinc	20	50	**2560***	**98.8**	19.1	**74.1**	**80700**

mg/kg - Milligrams per kilogram

ft bls - Feet below land surface

U - Indicates that the compound was analyzed for but not detected

B - Indicates analyte result between instrument detection limit and the contract required detection limit

J - Validator Qualifier - Estimated Value

N - Spiked sample recovery not within control limits

NYSDEC RSCOs - New York State Department of Environmental Conservatio Recommended Soil Cleanup Objectives

(1) - NYSDEC RSCOs or Eastern USA Background Concentrations in mg/kg

(2) - Eastern USA Background Concentrations in mg/kg

-- No NYSDEC RSCO or Eastern USA Background Concentration

NA - Not Analyzed

* Duplicate analysis not within control limits

E - East

W - West

C - Center

CS - Concrete Structure

DW - Dry Well

GS - Green Material

GSP - Green Material Pipe

LP - Leaching Pool

ST - Septic Tank

SE - Southeast

NW - Northwest

NE - Northeast

SW - Southwest

TP - Test Pit

C1 - Cradle 1

C2 - Cradle 2

FNE - Floor Northeast

FSW - Floor Southwest

MHPN - Manhole Pipe North

MHPW - Manhole Pipe West

MHPS - Manhole Pipe South

SS - Sludge - Like Sample

PE - Post Excavation

PET - Black Wood Debris

CB - Catch Basin

Note:

Bold data indicates that parameter was detected above the NYSDEC RSCOs

Table 20. Summary of TAL List Metals Detected in Building Structure Subsurface Material (Solid Material) using the TCLP and/or SPLP, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	USEPA Regulatory Levels (µg/L)	Designation:	TP-16 BWP	TP-16 GS	TP-21-1	TP-23 GSP	GS-1	GS-1	GS-2	GS-2
		Sample Date:	4/25/01	4/20/01	4/13/01	4/17/01	5/4/01	5/4/01	5/4/01	5/4/01
			TCLP	TCLP	TCLP	TCLP	TCLP	SPLP	TCLP	SPLP
Aluminum	--		NA	NA	NA	NA	92.5U	102U	153B	102U
Antimony	--		NA	NA	NA	NA	22.5U	46B	75.5B	24B
Arsenic	5,000		21.0U	41U	41U	41U	20.5U	33B	20.5U	21U
Barium	100,000		310B	301	97.9	466	226B	134B	315B	158B
Beryllium	--		NA	NA	NA	NA	2.5U	2.5U	2.5U	2.5U
Cadmium	1,000		5.3B	385	310	575	184	139	138	5.9
Calcium	--		NA	NA	NA	NA	59400U	54000U	93900U	66400U
Chromium	5,000		4.0U	**180000**	**191000**	**5130**	**146000**	**106000**	**32900**	**14700**
Cobalt	--		NA	NA	NA	NA	690	227B	207B	18.8B
Copper	--		NA	NA	NA	NA	16.0B	8U	11.2B	8U
Iron	--		NA	NA	NA	NA	269B	309B	175B	102U
Lead	5,000		14.4B	38	26U	2310	24.5	12.6B	38.5	10U
Magnesium	--		NA	NA	NA	NA	7560B	5710B	10000B	5420B
Manganese	--		NA	NA	NA	NA	64.3B	15.3B	209	11.1B
Mercury	200		20.8	1U	3.34J	2.82J	1.0U	1.0U	1.0U	1.0U
Nickel	--		NA	NA	NA	NA	7.5U	6.5U	11.8B	6.5U
Potassium	--		NA	NA	NA	NA	126000	46200	31600	7620B
Selenium	1,000		24.5U	46U	46U	46U	23.0U	24.5U	23.0U	24.5U
Silver	5,000		5.0UJ	10UJ	10UJ	10UJ	5.0UJ	5UJ	5.0UJ	5UJ
Sodium	--		NA	NA	NA	NA	821000U	4390BU	772000U	3290BU
Thallium	--		NA	NA	NA	NA	46.0U	45.5U	46.0U	45.5U
Vanadium	--		NA	NA	NA	NA	23.3B	24.4B	4.5U	5U
Zinc	--		NA	NA	NA	NA	319000	116000	198000	14000

ug/L - Micrograms per liter
U - Indicates that the compound was analyzed for but not detected
B - Estimated value
J - Validator Qualifier - Estimated value
NA - Not Analyzed
TP - Test Pit
BWP - Wood Debris Characterization
GS - Green Material
GSP - Green Material Pipe
TCLP - Toxicity Characteristic Leaching Procedure
SPLP - Synthetic Precipitation Leaching Procedure
-- No USEPA Regulatory Level available
USEPA - United States Environmental Protection Agency
RCRA - Resource Conservation and Recovery Act
TAL - Target Analyte List

Note:
Bold data indicates that parameter was detected above the USEPA Regulatory Levels.

Table 21. Summary of Polychlorinated Biphenyls Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	NYSDEC RSCOs (µg/kg)	**Designation:** **Sample Date:**	TP-16 GSO 04/20/2001	TP-16 BWP 04/25/2001
Aroclor-1016	(1)		33U	33U
Aroclor-1221			67U	67U
Aroclor-1232			33U	33U
Aroclor-1242			33U	210J
Aroclor-1248			33U	33U
Aroclor-1254			33U	850
Aroclor-1260			8600	670J

U - Indicates that the compound was analyzed for but not detected
J - Validator Qualifier - Estimated Value
µg/kg - Micrograms per kilogram
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
GSO - Green Material
BWP - Wood Debris Characterization
TP - Test Pit
(1) The NYSDEC RSCO for Total PCBs (sum of the Aroclors) is 10,000 µg/kg

Table 22. Summary of Total Petroleum Hydrocarbons Detected in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/kg)	Designation: / Sample Date: / Sample Depth (ft bls):	TP-16 04/04/01 12-13	TP-16 GSO 04/20/01 -	TP-16-PE SOUTH 04/05/01 -	TP-16-PE WEST 04/05/01 -	TP-16-PE NORTH 04/05/01 -	TP-16-PE BOTTOM 04/05/01 -	TP-16 BWP 04/25/01 -	TP-32 WP 04/25/01 -
Total Petroleum Hydrocarbons		21000000J	7800000J	200,000	17,000U	170000J	62,000	2,200,200	270,000

U - Indicates that the compound was analyzed for but not detected
J - Validator Qualifier - Estimated value
µg/kg - Micrograms per kilogram
ft bls - feet below land surface
TP - Test Pit
GSO - Green Material
PE - Post Excavation
BWP - Wood Debris Characterization
WP - Wood Debris

Table 23. Summary of pH in Building Structure Subsurface Material (Solid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in Standard Units)	Designation: / Sample Date: / Sample Depth (ft bls):	TP-15 C1 04/10/2001 6-8	TP-15 C1 04/10/2001 8-10	TP-15 C2 04/10/2001 6-8	TP-15 C2 04/10/2001 8-10	TP-16/FNE 04/10/2001 5-7	TP-16/FNE 04/10/2001 9-11	TP-16/FSW 04/10/2001 5-7	TP-16/FSW 04/10/2001 7-9
pH		8.94	8.06	8.49	8.55	8.17	8.82	8.33	8.15

Parameter (Concentrations in Standard Units)	Designation: / Sample Date: / Sample Depth (ft bls):	TP-16/PET 04/10/2001 --	TP-16 04/10/2001 12-13	TP-16-2 CLAY PIPE 04/10/2001 --	TP-16-3WP 04/11/2001 --	TP-16-4CB 04/11/2001 --	TP-19-1 04/12/2001 --	TP-19-2 04/12/2001 --	TP-23/GSP 04/17/2001 --
pH		9.01	7.39	7.84	7.34	7.42	8.02	7.76	6.28

ft bls - Feet below land surface
TP - Test Pit
C1 - Cradle 1
C2 - Cradle 2
FNE - Floor Northeast
FSW - Floor Southwest
PET - Black Wood Debris
CB - Catch Basin
GSP - Green Material Pipe

Table 24. Summary of Volatile Organic Compounds Detected in Building Structure Subsurface Material (Liquid Material), Former Thypin Steel Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in µg/L)	NYSDEC AWQSGVs[1] (µg/L)	Sample Designation: Sample Date:	LP-E 4/30/01	LP-C 4/30/01	LP-W 4/30/01	ST-1B 4/30/01	TP-33 MB 4/24/01
1,1,1-Trichloroethane	5		**6**	5U	5U	5U	5UJ
1,1,2,2-Tetrachloroethane	5		5U	5U	5U	5U	5UJ
1,1,2-Trichloroethane	1		5U	5U	5U	5U	5UJ
1,1-Dichloroethane	5		5U	5U	5U	5U	5UJ
1,1-Dichloroethene	5		5U	5U	0.4J	5U	5UJ
1,1-Dichloropropene	5		5U	5U	5U	5U	5UJ
1,2-Dichloroethane	5		5U	5U	5U	5U	5UJ
1,2-Dichloropropane	5		5U	5U	5U	5U	5UJ
2-Butanone	--		10U	10U	10U	10U	2JB
Acetone	50		10U	10U	24	10	10UJ
Bromodichloromethane	50		5U	5U	5U	5U	5UJ
Bromoform	50		5U	5U	5U	5U	5UJ
Carbon Disulfide	60		5U	5U	5U	5U	5UJ
Carbon Tetrachloride	5		5U	5U	5U	5U	5UJ
Chlorobenzene	5		5U	5U	5U	**6**	5UJ
Chloroethane	5		10U	10U	10U	10U	10UJ
Chloroform	7		5U	5U	5U	5U	5UJ
Chloromethane	--		10U	10U	10U	10U	10UJ
cis-1,2-Dichloroethene	5		4J	5U	5U	5U	5UJ
cis-1,3-Dichloropropene	5		5U	5U	5U	5U	5UJ
Dibromochloromethane	50		5U	5U	5U	5U	2J
Methylene Chloride	5		5U	5U	5U	0.6J	0.4JB
MTBE	10		NA	NA	NA	NA	NA
Tetrachloroethene	5		**4J**	2J	0.4J	5U	5UJ
trans-1,2-Dichloroethene	5		5U	5U	5U	5U	5UJ
trans-1,3-Dichloropropene	5		5U	5U	5U	5U	5UJ
Trichloroethene	5		**18**	5	1J	5U	4J
Trichlorofluoromethane	5		5U	5U	5U	5U	5UJ
Vinyl Chloride	2		1J	2U	2U	2U	2UJ
Benzene	1		1U	1U	1U	1J	1UJ
Ethylbenzene	5		5U	5U	5U	5U	5UJ
o-Xylene	5		5U	5U	5U	5U	5UJ
m+p-Xylene	5		5U	5U	5U	5U	5UJ
Toluene	5		5U	5U	0.7J	5U	5UJ

[1] - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs)

µg/L - Micrograms per liter

U - Compound was analyzed for but not detected

J - Estimated Value

-- - No NYSDEC AWQSGV available

B - Compound detected in laboratory blank

NA - Not Analyzed

LP - Leaching Pool

E - East

W - West

C - Center

ST - Septic Tank

MB - Metal Box

Note:

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 25. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Liquid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (ug/L)	**Designation:** **Sample Date:**	LP-E 4/30/01	LP-C 4/30/01	LP-W 4/30/01	ST-1 4/30/01
1,2,4-Trichlorobenzene	5		11U	11U	10U	11U
1,2-Dichlorobenzene	3		11U	11U	10U	11U
1,3-Dichlorobenzene	3		11U	11U	10U	11U
1,4-Dichlorobenzene	3		11U	11U	10U	2J
2,2'-oxybis(1-Chloropropane)	--		11U	11U	10U	11U
2,4,5-Trichlorophenol	--		21U	21U	20U	21U
2,4,6-Trichlorophenol	--		11U	11U	10U	11U
2,4-Dichlorophenol	5		11U	11U	10U	11U
2,4-Dimethylphenol	50		11U	11U	10U	11U
2,4-Dinitrophenol	10		21U	21U	20U	21U
2,4-Dinitrotoluene	5		11U	11U	10U	11U
2,6-Dinitrotoluene	5		11U	11U	10U	11U
2-Chloronaphthalene	10		11U	11U	10U	11U
2-Chlorophenol	--		11U	11U	10U	11U
2-Methylnaphthalene	--		11U	11U	10U	11U
2-Methylphenol	--		11U	11U	10U	11U
2-Nitroaniline	5		21U	21U	20U	21U
2-Nitrophenol	--		11U	11U	10U	11U
3,3'-Dichlorobenzidine	5		11U	11U	10U	11U
3-Nitroaniline	5		21U	21U	20U	21U
4,6-Dinitro-2-methylphenol	--		21U	21U	20U	21U
4-Bromophenyl phenyl ether	--		11U	11U	10U	11U
4-Chloro-3-methylphenol	--		11U	11U	10U	11U
4-Chloroaniline	5		11U	11U	10U	11U
4-Chlorophenyl phenyl ether	--		11U	11U	10U	11U
4-Methylphenol	--		11U	11U	6J	11U
4-Nitroaniline	5		21U	21U	20U	21U
4-Nitrophenol	--		21U	21U	20U	21U
Acenaphthene	20		11U	11U	0.8J	0.9J
Acenaphthylene	20		11U	11U	10U	11U
Anthracene	50		11U	11U	0.7J	0.5J
Benzo[a]anthracene	0.002		11U	11U	10U	11U
Benzo[a]pyrene	ND		11U	11U	10U	11U
Benzo[b]fluoranthene	0.002		11U	11U	10U	11U
Benzo[g,h,i]perylene	--		11U	11U	10U	11U
Benzo[k]fluoranthene	0.002		11U	11U	10U	11U
Benzoic acid	--		21UR	21UR	19JR	21UR
Benzyl alcohol	--		11U	11U	10U	11U
bis(2-Chloroethoxy)methane	5		11U	11U	10U	11U
bis(2-Chloroethyl) ether	1		11U	11U	10U	11U
bis(2-Ethylhexyl) phthalate	5		11U	11U	10U	11U
Butylbenzyl phthalate	50		11U	11U	10U	11U
Carbazole	--		11U	11U	0.9J	11U
Chrysene	0.002		11U	11U	10U	11U
Dibenzo[a,h]anthracene	--		11U	11U	10U	11U
Dibenzofuran	--		11U	11U	0.4J	11U
Diethyl phthalate	50		11U	11U	10U	0.3J

Table 25. Summary of Semivolatile Organic Compounds Detected in Building Structure Subsurface Material (Liquid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (ug/L)	**Designation:** **Sample Date:**	LP-E 4/30/01	LP-C 4/30/01	LP-W 4/30/01	ST-1 4/30/01
Dimethyl phthalate	50		11U	11U	10U	11U
Di-n-butyl phthalate			11U	11U	10U	11U
Di-n-octyl phthalate	50		11U	11U	10U	11U
Fluoranthene	50		0.2J	11U	0.4J	11U
Fluorene	50		11U	11U	0.9J	0.7J
Hexachlorobenzene	0.04		11U	11U	10U	11U
Hexachlorobutadiene	0.5		11U	11U	10U	11U
Hexachlorocyclopentadiene	5		11UJ	11UJ	10UJ	11UJ
Hexachloroethane	5		11U	11U	10U	11U
Indeno[1,2,3-cd]pyrene	0.002		11U	11U	10U	11U
Isophorone	50		11U	11U	10U	11U
Naphthalene	10		11U	11U	1J	0.5J
Nitrobenzene	0.4		11U	11U	10U	11U
N-Nitrosodi-n-propylamine	--		11U	11U	10U	11U
N-Nitrosodiphenylamine	50		11U	11U	10U	11U
Pentachlorophenol	--		51U	51U	51U	55U
Phenanthrene	50		11U	11U	0.9J	0.3J
Phenol	--		11U	11U	10U	11U
Pyrene	50		0.2J	11U	0.5J	11U

U - Indicates that the compound was analyzed for but not detected
J - Estimated value
ft bls - Feet below land surface
µg/L - Micrograms per liter
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
-- - No NYSDEC AWQSGV available
ND - Not Detected
LP - Leaching Pool
E - East
C - Center
W - West
ST - Septic Tank

Table 26. Summary of Target Analyte List Metals (Total and Dissolved) Detected in Building Structure Subsurface Material (Liquid Material), Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in ug/L)	NYSDEC AWQSGVs (ug/L)	Designation: / Sample Date:	LP-E 4/30/01 Total	LP-E 4/30/01 Dissolved	LP-C 4/30/01 Total	LP-C 4/30/01 Dissolved	LP-W 4/30/01 Total	LP-W 4/30/01 Dissolved	ST-1 4/30/01 Total	ST-1 4/30/01 Dissolved	TP-33 MB 5/10/01 Total	TP-33 MB 5/10/01 Dissolved
Aluminum	-		10700	197B	140B	18.5U	301	23.7B	125B	18.5U	75.7B	20.7B
Antimony	3		4.5U	4.5U	4.5U	4.5U	4.5U	4.5U	4.5U	4.5U	4.4U	4.4U
Arsenic	25		6.6B	4.1U	4.1U	4.1U	11.6	10.3	4.1U	4.1U	4.2U	4.2U
Barium	1,000		118B	64.5B	41.5B	40.7B	140B	144B	478	380	34.0B	31.3B
Beryllium	3		0.63B	0.50U	0.50U	0.50U	0.50U	0.50U	0.50U	0.50U	0.50U	0.50U
Cadmium	5		0.80U	0.80U	2.0B	1.9B	0.80U	0.80U	0.80U	0.80U	0.90U	0.90U
Calcium	-		129000	129000	98200	100000	276000	304000	297000	250000	29500	27600
Chromium	50		17.3	1.0U	1.9B	1.0U	2.1B	1.0U	2.3B	1.4B	13.9	0.80U
Cobalt	-		10.5B	5.0B	1.8B	1.6B	2.6B	3.0B	2.7B	2.0B	3.3B	1.6U
Copper	200		20.4B	2.6B	9.8B	7.9B	4.0B	1.8U	3.0B	1.8U	7.1B	3.2B
Iron	300		**13400J**	**724J**	282J	18.9BJ	**11100J**	**11200J**	**21300J**	**15400J**	**5550**	81.9B
Lead	25		**32.3**	2.6U	2.8B	2.6U	5.3	3.5	2.6U	2.6U	2.0U	2.0U
Magnesium	35,000		15900	14500	6350	6530	20800	23200	**42200**	**35600**	2250B	2090B
Manganese	300		**1110**	**832**	115	106	**2000**	**2230**	**1680**	**1400**	**443**	**398**
Mercury	0.7		0.10U	0.10U	0.10U	0.10U	0.10U	0.10U	0.10U	0.10U	0.10U	0.10U
Nickel	100		24.1B	9.7B	13.8B	13.0B	5.6B	5.0B	1.5U	1.5U	12.3B	6.8B
Potassium	-		29500	28700	8940	9200	27600	30700	56200	46400	16400	15600
Selenium	10		4.6U	5.3	4.6UJ	5.9J	4.6U	4.6U	4.6U	4.6U	4.9U	4.9U
Silver	50		1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	3.1B	1.0U
Sodium	20,000		**26800**	**26600**	7410	7600	**21600**	**23900**	**48200**	**40500**	19400	18900
Thallium	0.5		**11.5**	9.2U	9.2U	9.2U	9.2U	9.2U	9.2U	9.2U	**9.6B**	9.1U
Vanadium	-		19.6B	1.6B	2.5B	2.2B	1.1B	0.90U	0.90U	0.90U	1.6B	1.0U
Zinc	2,000		117	49.3	265	254	20.9	13.1B	30.0	24.2	683	126

U - Indicates that the compound was analyzed for but not detected

B - Estimated value

J - Validator Qualifier - Estimated Value

µg/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

- - No NYSDEC AWQSGV available

Total - Unfiltered groundwater sample

Dissolved - Filtered groundwater sample

LP - Leaching Pool

E - East

C - Center

W - West

ST - Septic Tank

TP - Test Pit

MB - Metal Box

Note:

Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 27. Summary of Total Dissolved Solids and Chloride Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

PARAMETER (Concentrations in mg/L)	NYSDEC AWQSGVs (mg/L)	Sample Designation:	SB-31	SB-32	SB-35	SB-38	SB-39	SB-40	SB-41	SB-45	SB-47
		Sample Date:	3/1/01	4/11/01	3/1/01	3/9/01	3/12/01	4/12/01	4/5/01	3/8/01	3/9/01
		Sample Depth (ft bls):	48-50	111-113	48-50	48-50	48-50	101-103	101-103	48-50	48-50
Chloride	250		43.5	94.1	47.5	26.2	36.6	**1110**	192	82.9	69.8
Total Dissolved Solids	500		234	349	**536**	**505**	224	**2150**	**525**	**595**	214

NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
ft bls - feet below land surface
mg/L - Milligrams per liter

Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 28. Summary of Base Neutral Compounds Detected in Groundwater, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (ug/L)	**Designation:**	MW-26	MW-26R
		Sample Date:	11/27/2000	11/27/2000
Acenaphthylene	20		10U	10U
Anthracene	50		10U	10U
Benzo[a]anthracene	0.002		10U	10U
Benzo[a]pyrene	ND		10U	10U
Benzo[b]fluoranthene	0.002		10U	10U
Benzo[g,h,i]perylene	--		10U	10U
Benzo[k]fluoranthene	0.002		10U	10U
Chrysene	0.002		10U	10U
Dibenzo[a,h]anthracene	--		10U	10U
Fluoranthene	50		20U	20U
Fluorene	50		10U	10U
Indeno[1,2,3-cd]pyrene	0.002		10U	10U
Naphthalene	10		10U	10U
Phenanthrene	50		10U	10U
Pyrene	50		10U	10U

U - Indicates that the compound was analyzed for but not detected
ft bls - Feet below land surface
µg/L - Micrograms per liter
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
-- - No NYSDEC AWQSGV available
R - Replicate sample

Table 29. Summary of Polychlorinated Biphenyl Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (ug/L)	**Sample Designation:** **Sample Date:**	MW-1 06/14/01	MW-2 06/15/01	MW-2I 07/06/01	MW-2D 07/05/01	REP-1 06/15/01	MW-21 06/14/01
Aroclor-1016	(1)		0.091U	0.097U	0.091U	0.098U	0.091U	0.091U
Aroclor-1221			0.23U	0.24U	0.23U	0.25U	0.23U	0.23U
Aroclor-1232			0.24U	0.26U	0.24U	0.26U	0.24U	0.24U
Aroclor-1242			0.18U	0.19U	0.18U	0.19U	0.18U	0.18U
Aroclor-1248			0.062U	0.066U	0.062U	0.067U	0.062U	0.062U
Aroclor-1254			0.033U	0.033U	0.033U	0.033U	0.033U	0.033U
Aroclor-1260			0.056U	0.056U	0.056U	0.056U	0.056U	0.056U

µg/L - Micrograms per liter
U - Indicates that the compound was analyzed for but not detected
R - Validator Qualifier - Rejected
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water - Quality Standards and Guidance Values
S - Shallow
I - Intermediate
D - Deep
Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs
Monitoring Well without a D, I or S designation indicates a shallow well
A "U" qualifier was added by the Validator to MW-27 and MW-28 results for Aroclor-1260 due to poor response at background level during analysis
(1) The NYSDEC AWQSGV for Total PCBs (sum of the Aroclors) is 0.09 µg/L

Table 29. Summary of Polychlorinated Biphenyl Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (ug/L)	**Sample Designation:** **Sample Date:**	MW-22 06/21/01	MW-23 06/14/01	MW-23I 07/02/01	MW-24 06/15/01	MW-25 06/15/01	MW-26 06/19/01
Aroclor-1016	(1)		0.091U	0.091U	0.091U	0.097U	0.1U	0.091U
Aroclor-1221			0.23U	0.23U	0.23U	0.24U	0.25U	0.23U
Aroclor-1232			0.24U	0.24U	0.24U	0.26U	0.26U	0.24U
Aroclor-1242			0.18U	0.18U	0.18U	0.19U	0.2U	0.18U
Aroclor-1248			0.062U	0.062U	0.062U	0.066U	0.068U	0.062U
Aroclor-1254			0.033U	0.033U	0.033U	0.033U	0.033U	0.033U
Aroclor-1260			0.056U	0.056U	0.056U	0.056U	0.056U	0.056U

µg/L - Micrograms per liter
U - Indicates that the compound was analyzed for but not detected
R - Validator Qualifier - Rejected
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water - Quality Standards and Guidance Values
S - Shallow
I - Intermediate
D - Deep
Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs
Monitoring Well without a D, I or S designation indicates a shallow well
A "U" qualifier was added by the Validator to MW-27 and MW-28 results for Aroclor-1260 due to poor response at background level during analysis
(1) The NYSDEC AWQSGV for Total PCBs (sum of the Aroclors) is 0.09 µ

Table 29. Summary of Polychlorinated Biphenyl Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (ug/L)	**Sample Designation:** **Sample Date:**	MW-26I 06/19/01	MW-26D 07/09/01	MW-27 06/13/01	MW-28 06/13/01	MW-29S 06/29/01	MW-29I 07/02/01
Aroclor-1016	(1)		0.091U	0.091U	0.091U	0.091U	0.1U	0.091U
Aroclor-1221			0.23U	0.23U	0.23U	0.23U	0.26U	0.23U
Aroclor-1232			0.24U	0.24U	0.24U	0.24U	0.27U	0.24U
Aroclor-1242			0.18U	0.18U	0.18U	0.18U	0.2U	0.18U
Aroclor-1248			0.062U	0.062U	0.062U	0.062U	0.07U	0.062U
Aroclor-1254			0.033U	0.033U	0.033U	0.033U	0.033U	0.033U
Aroclor-1260			0.056U	0.056U	0.16U	0.16U	0.056U	0.056U

µg/L - Micrograms per liter
U - Indicates that the compound was analyzed for but not detected
R - Validator Qualifier - Rejected
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water - Quality Standards and Guidance Values
S - Shallow
I - Intermediate
D - Deep
Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs
Monitoring Well without a D, I or S designation indicates a shallow well
A "U" qualifier was added by the Validator to MW-27 and MW-28 results for Aroclor-1260 due to poor response at background level during analysis
(1) The NYSDEC AWQSGV for Total PCBs (sum of the Aroclors) is 0.09 µ

Table 29. Summary of Polychlorinated Biphenyl Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (ug/L)	**Sample Designation:** **Sample Date:**	MW-29D 07/19/01	MW-30S 06/18/01	MW-30I 06/28/01	MW-31S 06/29/01	MW-31I 07/11/01	MW-31D 07/16/01
Aroclor-1016	(1)		0.1U	0.091U	0.096U	0.1U	0.091U	0.091U
Aroclor-1221			0.25U	0.23U	0.24U	0.26U	0.23U	0.23U
Aroclor-1232			0.26U	0.24U	0.25U	0.27U	0.24U	0.24U
Aroclor-1242			0.2U	0.18U	0.19U	0.2U	0.18U	0.18U
Aroclor-1248			0.068U	0.062U	0.065U	0.07U	0.062U	0.062U
Aroclor-1254			0.033U	0.033U	0.033U	0.033U	0.033U	0.033U
Aroclor-1260			0.056U	0.056U	0.056U	0.056U	0.056U	0.056U

µg/L - Micrograms per liter
U - Indicates that the compound was analyzed for but not detected
R - Validator Qualifier - Rejected
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water - Quality Standards and Guidance Values
S - Shallow
I - Intermediate
D - Deep
Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs
Monitoring Well without a D, I or S designation indicates a shallow well
A "U" qualifier was added by the Validator to MW-27 and MW-28 results for Aroclor-1260 due to poor response at background level during analysis
(1) The NYSDEC AWQSGV for Total PCBs (sum of the Aroclors) is 0.09 µ

Table 29. Summary of Polychlorinated Biphenyl Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (ug/L)	**Sample Designation:** **Sample Date:**	MW-32S 06/21/01	MW-33S 06/26/01	MW-33I 06/26/01	REP-2 06/26/01	MW-33D 07/13/01	REP-3 07/13/01
Aroclor-1016	(1)		0.091U	0.099U	0.096U	0.096U	0.091U	0.091UR
Aroclor-1221			0.23U	0.25U	0.24U	0.24U	0.23U	0.23UR
Aroclor-1232			0.24U	0.26U	0.25U	0.25U	0.24U	0.24UR
Aroclor-1242			0.18U	0.2U	0.19U	0.19U	0.18U	0.18UR
Aroclor-1248			0.062U	0.067U	0.065U	0.065U	0.062U	0.062UR
Aroclor-1254			0.033U	0.033U	0.033U	0.033U	0.033U	0.033UR
Aroclor-1260			0.056U	0.056U	0.056U	0.056U	0.056U	0.056U

µg/L - Micrograms per liter
U - Indicates that the compound was analyzed for but not detected
R - Validator Qualifier - Rejected
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water - Quality Standards and Guidance Values
S - Shallow
I - Intermediate
D - Deep
Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs
Monitoring Well without a D, I or S designation indicates a shallow well
A "U" qualifier was added by the Validator to MW-27 and MW-28 results for Aroclor-1260 due to poor response at background level during analysis
(1) The NYSDEC AWQSGV for Total PCBs (sum of the Aroclors) is 0.09 µ

Table 29. Summary of Polychlorinated Biphenyl Compounds Detected in Groundwater, Former Thypin Steel Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (ug/L)	**Sample Designation:** **Sample Date:**	MW-34S 06/29/01	MW-34I 07/06/01	MW-34D 07/19/01	MW-35S 06/28/01	MW-35I 06/28/01	MW-35D 07/19/01
Aroclor-1016	(1)		0.1U	0.091U	0.095U	0.099U	0.097U	0.094U
Aroclor-1221			0.25U	0.23U	0.24U	0.25U	0.24U	0.24U
Aroclor-1232			0.26U	0.24U	0.25U	0.26U	0.26U	0.25U
Aroclor-1242			0.2U	0.18U	0.19U	0.2U	0.19U	0.18U
Aroclor-1248			0.068U	0.062U	0.064U	0.067U	0.066U	0.064U
Aroclor-1254			0.033U	0.033U	0.033U	0.033U	0.033U	0.033U
Aroclor-1260			0.056U	0.056U	0.056U	0.056U	0.056U	0.056U

µg/L - Micrograms per liter
U - Indicates that the compound was analyzed for but not detected
R - Validator Qualifier - Rejected
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water - Quality Standards and Guidance Values
S - Shallow
I - Intermediate
D - Deep
Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs
Monitoring Well without a D, I or S designation indicates a shallow well
A "U" qualifier was added by the Validator to MW-27 and MW-28 results for Aroclor-1260 due to poor response at background level during analysis
(1) The NYSDEC AWQSGV for Total PCBs (sum of the Aroclors) is 0.09 µ

Table 30. Summary of Volatile Organic Compounds Detected in Soil Gas, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/m^3)	Sample Designation:	GP-1	GP-1	GP-1 RE	GP-2	GP-2	GP-2 RE	GP-3	GP-3	GP-3 RE
	Sample Date:	07/23/01	07/23/01	07/23/01	07/23/01	07/23/01	07/23/01	07/23/01	07/23/01	07/23/01
	Sample Depth (ft bls):	3	6	6	3	6	6	3	6	3
1,1,1-Trichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
1,1,2,2-Tetrachlorocthane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
1,1,2-Trichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
1,1-Dichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
1,1-Dichloroethene		0.037	0.009U	0.009U	0.295	0.079	0.081	0.020U	0.021	0.010
1,2-Dichlorocthane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
cis-1,2-Dichloroethene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
trans-1,2-Dichloroethene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
1,2-Dichloropropane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
cis-1,3-Dichloropropene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
trans-1,3-Dichloropropene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
Benzene		0.012B	0.013B	0.012B	0.010B	0.011B	0.011B	0.020U	0.009B	0.010B
Bromodichloromethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.019	0.009U
Bromoform		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
Bromomethane		0.017J	0.009U	0.018U	0.019U	0.019U	0.019U	0.020U	0.019U	0.019U
Carbon Disulfide		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
Carbon Tetrachloride		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
Chlorobenzene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
Chloroethane		0.019U	0.020U	0.018U	0.019U	0.019U	0.019U	0.020U	0.019U	0.019U
Chloroform		0.096	0.103	0.159	0.009U	0.009U	0.009U	0.020U	0.027	0.019
Chloromethane		0.019U	0.009U	0.018U	0.019U	0.019U	0.019U	0.020U	0.019U	0.019U
Dibromochloromcthane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.020U	0.009U	0.009U
Ethylbenzene		0.010	0.018	0.009U	0.012	0.009	0.009	0.020U	0.009J	0.007J
m+p-Xylene		0.030	0.039	0.031	0.028	0.022	0.028	0.020U	0.025	0.017
Methylene chloride		0.049	0.169	0.022	0.032	0.028	0.025	0.020U	0.009	0.011
o-Xylene		0.016	0.022	0.012	0.011	0.013	0.013	0.020U	0.012	0.009J
Styrene		0.024	0.035	0.028	0.020	0.027	0.024	0.020U	0.017	0.016
Tetrachlorocthenc		0.022	0.043	0.053	0.017	0.024	0.023	0.020U	0.058	0.031
Toluene		0.167	0.197	0.319	0.157	0.196	0.235	0.020U	0.265	0.167
Trichloroethene		0.009U	0.010	0.009U	0.009	0.021	0.014	0.020U	0.062	0.017
Vinyl Chloride		0.019U	0.020	0.018U	0.019U	0.019U	0.019U	0.020U	0.019U	0.019U

Notes:
J - Estimated value
U - Compound analyzed for but not detected
mg/m^3 - Milligrams per cubic meter
ft bls - Feet below land surface
RE - Sample reanalyzed
B - Analyte detected in laboratory blank

Table 30. Summary of Volatile Organic Compounds Detected in Soil Gas, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/m^3)	Sample Designation:	GP-4	GP-4	GP-4 RE	GP-5	GP-5	GP-6	GP-6	GP-7	GP-7
	Sample Date:	07/23/01	07/23/01	07/23/01	07/23/01	07/23/01	07/26/01	07/26/01	07/26/01	07/26/01
	Sample Depth (ft bls):	3	6	6	3	6	3	6	3	6
1,1,1-Trichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
1,1,2,2-Tetrachloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
1,1,2-Trichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
1,1-Dichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
1,1-Dichloroethene		0.027	0.008J	0.038	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
1,2-Dichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
cis-1,2-Dichloroethene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
trans-1,2-Dichloroethene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
1,2-Dichloropropane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
cis-1,3-Dichloropropene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
trans-1,3-Dichloropropene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
Benzene		0.010B	0.013B	0.012B	0.009JB	0.008JB	0.007JB	0.004JB	0.050U	0.016U
Bromodichloromethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
Bromoform		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
Bromomethane		0.019U	0.019U	0.019U	0.017J	0.019U	0.019U	0.018U	0.100U	0.033U
Carbon Disulfide		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
Carbon Tetrachloride		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
Chlorobenzene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
Chloroethane		0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.018U	0.100U	0.033U
Chloroform		0.009U	0.009U	0.009U	0.009U	0.003J	0.017	0.004J	0.048J	0.020
Chloromethane		0.019U	0.019U	0.019U	0.061	0.061	0.019U	0.018U	0.100U	0.033U
Dibromochloromethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.050U	0.016U
Ethylbenzene		0.009	0.009J	0.006J	0.009	0.011	0.009U	0.009U	0.050U	0.016U
m+p-Xylene		0.028	0.032	0.019	0.032	0.029	0.014	0.014	0.050U	0.009J
Methylene chloride		0.023	0.020	0.067	0.011	0.009U	0.008J	0.009	0.015J	0.001J
o-Xylene		0.011	0.015	0.011	0.012	0.011	0.009U	0.003J	0.050U	0.016U
Styrene		0.016	0.028	0.021	0.019	0.018	0.007J	0.009	0.050U	0.016U
Tetrachloroethene		0.029	0.037	0.028	0.017	0.020	0.052	0.054	0.075	0.080
Toluene		0.187	0.205	0.205	0.157	0.186	0.095	0.085	0.085	0.065
Trichloroethene		0.009	0.018	0.014	0.009J	0.016	0.258	0.153	1.200	0.600
Vinyl Chloride		0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.018U	0.100U	0.033U

Notes:
J - Estimated value
U - Compound analyzed for but not detected
mg/m^3 - Milligrams per cubic meter
ft bls - Feet below land surface
RE - Sample reanalyzed
B - Analyte detected in laboratory blank

Table 30. Summary of Volatile Organic Compounds Detected in Soil Gas, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/m^3)	Sample Designation:	GP-8	GP-8	GP-9	GP-9	GP-10	GP-10	GP-11	GP-11	GP-12
	Sample Date:	07/26/01	07/26/01	07/26/01	07/26/01	07/26/01	07/26/01	07/25/01	07/25/01	07/26/01
	Sample Depth (ft bls):	3	6	3	6	3	6	3	6	3
1,1,1-Trichloroethane		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
1,1,2,2-Tetrachloroethane		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
1,1,2-Trichloroethane		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
1,1-Dichloroethane		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
1,1-Dichloroethene		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
1,2-Dichloroethane		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
cis-1,2-Dichloroethene		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
trans-1,2-Dichloroethene		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
1,2-Dichloropropane		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
cis-1,3-Dichloropropene		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
trans-1,3-Dichloropropene		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
Benzene		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
Bromodichloromethane		0.062U	0.025U	0.050U	0.033U	0.020	0.018J	0.004U	0.036J	0.200U
Bromoform		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
Bromomethane		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
Carbon Disulfide		0.125U	0.050U	0.100U	0.066U	0.025U	0.004U	0.008U	0.200U	0.400U
Carbon Tetrachloride		0.062U	0.025U	0.050U	0.033U	0.053	0.020U	0.004U	0.100U	0.200U
Chlorobenzene		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
Chloroethane		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
Chloroform		0.125U	0.050U	0.100U	0.066U	0.025U	0.004U	0.008U	0.200U	0.400U
Chloromethane		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
Dibromochloromethane		0.125U	0.050U	0.100U	0.066U	0.025U	0.004U	0.008U	0.200U	0.400U
Ethylbenzene		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
m+p-Xylene		0.062U	0.025U	0.050U	0.033U	0.012U	0.020U	0.004U	0.100U	0.200U
Methylene chloride		0.062U	0.025U	0.050U	0.033U	0.036	0.035	0.004U	0.100U	0.200U
o-Xylene		0.011J	0.012J	0.050U	0.001J	0.005J	0.008J	0.004U	0.100U	0.200U
Styrene		0.062U	0.025U	0.050U	0.033U	0.011J	0.020U	0.004U	0.100U	0.200U
Tetrachloroethene		0.062U	0.025U	0.050U	0.033U	0.010J	0.009J	0.004U	0.100U	0.200U
Toluene		0.075	0.045	0.050	0.050	0.111	0.086	0.088	0.160	0.200U
Trichloroethene		0.156	0.067	0.095	0.113	0.162	0.148	0.112	0.130	0.200U
Vinyl Chloride		1.900	0.850	0.700	0.666	0.400	0.460	0.840	1.900	4.200
		0.125U	0.050U	0.100U	0.066U	0.025U	0.004U	0.008U	0.200U	0.400U

Notes:

J - Estimated value

U - Compound analyzed for but not detected

mg/m^3 - Milligrams per cubic meter

ft bls - Feet below land surface

RE - Sample reanalyzed

B - Analyte detected in laboratory blank

Table 30. Summary of Volatile Organic Compounds Detected in Soil Gas, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/m^3)	Sample Designation:	GP-12	GP-13	GP-13	GP-14	GP-14	GP-14 RE	GP-15	GP-15	GP-16
	Sample Date:	07/26/01	07/25/01	07/25/01	07/25/01	07/25/01	07/25/01	07/25/01	07/25/01	07/25/01
	Sample Depth (ft bls):	6	3	6	3	6	6	3	6	3
1,1,1-Trichloroethane		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
1,1,2,2-Tetrachloroethane		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
1,1,2-Trichloroethane		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
1,1-Dichloroethane		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
1,1-Dichloroethene		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
1,2-Dichloroethane		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
cis-1,2-Dichloroethene		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
trans-1,2-Dichloroethene		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
1,2-Dichloropropane		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
cis-1,3-Dichloropropene		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
trans-1,3-Dichloropropene		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
Benzene		0.038JB	0.030J	0.050U	0.007J	0.008J	0.009J	0.076J	0.071J	0.008J
Bromodichloromethane		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
Bromoform		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
Bromomethane		0.266U	0.100U	0.100U	0.019U	0.019U	0.019U	0.400U	0.333U	0.019U
Carbon Disulfide		0.133U	0.050U	0.050U	0.009U	0.009U	0.032	0.200U	0.166U	0.009U
Carbon Tetrachloride		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.051
Chlorobenzene		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
Chloroethane		0.266U	0.100U	0.100U	0.019U	0.019U	0.019U	0.400U	0.333U	0.019U
Chloroform		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
Chloromethane		0.266U	0.100U	0.100U	0.019U	0.019U	0.019U	0.400U	0.333U	0.019U
Dibromochloromethane		0.133U	0.050U	0.050U	0.009U	0.009U	0.009U	0.200U	0.166U	0.009U
Ethylbenzene		0.133U	0.050U	0.050U	0.005J	0.009U	0.006J	0.200U	0.166U	0.008J
m+p-Xylene		0.133U	0.050U	0.050U	0.023	0.022	0.029	0.200U	0.166U	0.023
Methylene chloride		0.133U	0.050U	0.050U	0.002J	0.002J	0.007J	0.200U	0.166U	0.009U
o-Xylene		0.133U	0.050U	0.050U	0.008J	0.007J	0.008J	0.200U	0.166U	0.011
Styrene		0.133U	0.050U	0.050U	0.014	0.021	0.021	0.200U	0.166U	0.015
Tetrachloroethene		0.133U	0.050U	0.049J	0.058	0.050	0.070	0.200U	0.166U	0.023
Toluene		0.066J	0.070	0.050U	0.124	0.143	0.191	0.11J	0.075J	0.095
Trichloroethene		1.900	1.300	1.400	0.305	0.401	0.602E	3.600	3.300	0.038
Vinyl Chloride		0.266U	0.100U	0.100U	0.019U	0.019U	0.019U	0.400U	0.333U	0.019U

Notes:
J - Estimated value
U - Compound analyzed for but not detected
mg/m^3 - Milligrams per cubic meter
ft bls - Feet below land surface
RE - Sample reanalyzed
B - Analyte detected in laboratory blank

Table 30. Summary of Volatile Organic Compounds Detected in Soil Gas, Former Thypin Steel, Inc. Facility, Manorhaven, New York.

Parameter (Concentrations in mg/m^3)	Sample Designation:	GP-16	GP-17	GP-17	GP-18	GP-18	GP-19	GP-19	GP-20	GP-20
	Sample Date:	07/25/01	07/23/01	07/23/01	07/23/01	07/26/01	07/25/01	07/25/01	07/23/01	07/23/01
	Sample Depth (ft bls):	6	3	6	6	3	3	6	3	6
1,1,1-Trichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
1,1,2,2-Tetrachloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
1,1,2-Trichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
1,1-Dichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
1,1-Dichloroethene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
1,2-Dichloroethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
cis-1,2-Dichloroethene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
trans-1,2-Dichloroethene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
1,2-Dichloropropane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
cis-1,3-Dichloropropene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
trans-1,3-Dichloropropene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
Benzene		0.004J	0.009B	0.009B	0.010B	0.008J	0.008J	0.009U	0.007JB	0.009JB
Bromodichloromethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
Bromoform		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
Bromomethane		0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U
Carbon Disulfide		0.009U	0.017	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
Carbon Tetrachloride		0.017	0.012	0.011	0.009U	0.020	0.009U	0.009U	0.009	0.003J
Chlorobenzene		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
Chloroethane		0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U
Chloroform		0.009U	0.012	0.012	0.007J	0.015	0.009U	0.009U	0.002J	0.009U
Chloromethane		0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U
Dibromochloromethane		0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U	0.009U
Ethylbenzene		0.009U	0.007J	0.005J	0.007J	0.006J	0.009U	0.009U	0.005J	0.005J
m+p-Xylene		0.027	0.019	0.019	0.015	0.023	0.020	0.019	0.015	0.016
Methylene chloride		0.009U	0.009J	0.006J	0.016	0.002J	0.002J	0.009U	0.012	0.015
o-Xylene		0.012	0.011	0.009J	0.007J	0.009J	0.010	0.009J	0.007J	0.008J
Styrene		0.013	0.014	0.015	0.014	0.007J	0.009J	0.013	0.012	0.015
Tetrachloroethene		0.022	0.036	0.045	0.055	0.041	0.028	0.022	0.027	0.040
Toluene		0.095	0.147	0.147	0.157	0.091	0.124	0.134	0.137	0.138
Trichloroethene		0.043	0.118	0.166	0.084	0.191	0.030	0.023	0.041	0.046
Vinyl Chloride		0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U

Notes:

J - Estimated value

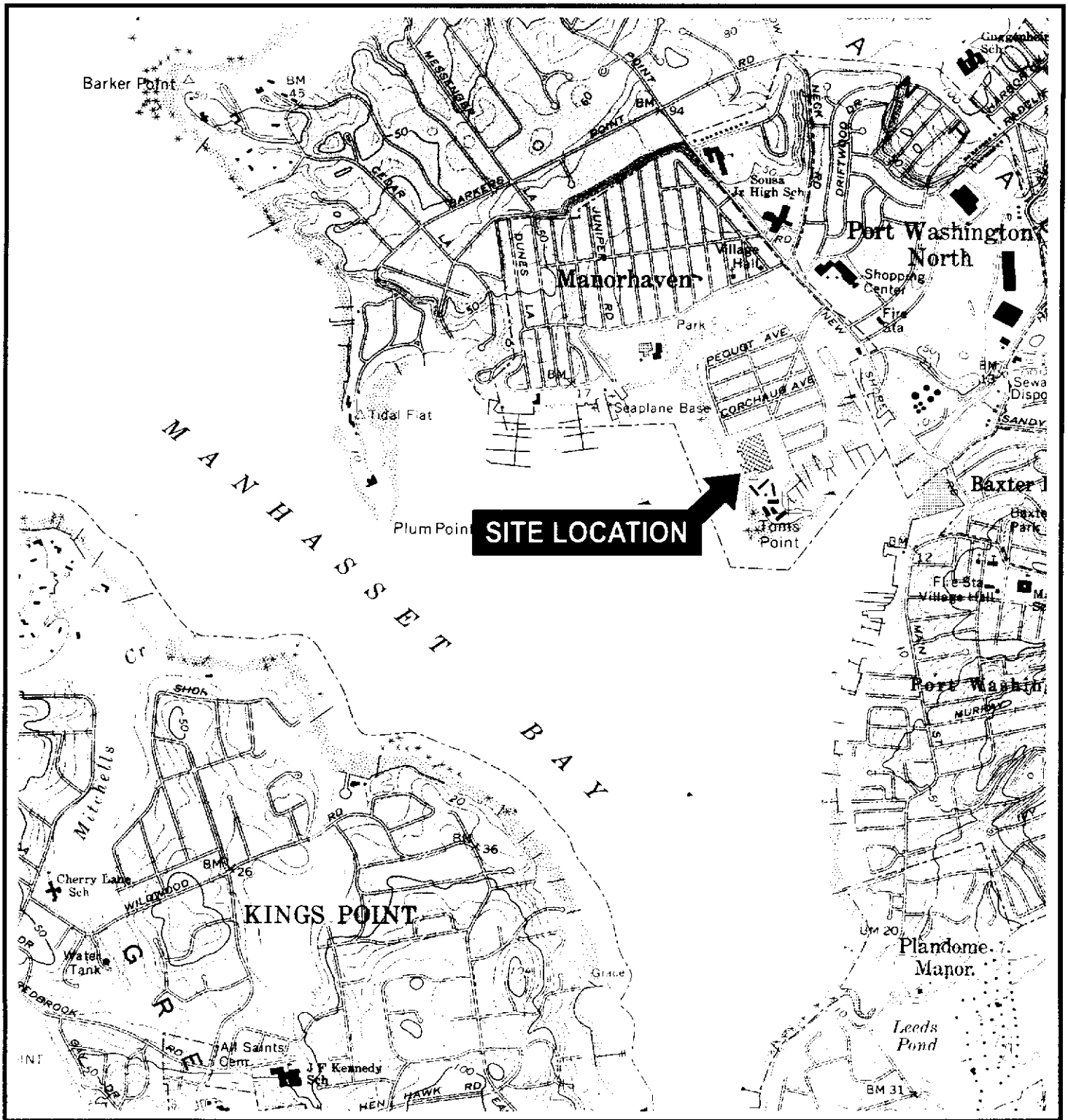
U - Compound analyzed for but not detected

mg/m^3 - Milligrams per cubic meter

ft bls - Feet below land surface

RE - Sample reanalyzed

B - Analyte detected in laboratory blank



QUADRANGLE LOCATION

N

0 2000'

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

Title:

SITE LOCATION MAP

FORMER THYPIN STEEL FACILITY
MANORHAVEN, NEW YORK

Prepared for:
MBA-MANORHAVEN, LLC
PRINCETON, NEW JERSEY

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: B.M.		Date: 23JUL01	FIGURE
Prepared by: G.M.		Scale: 1:25000	1
Project Mgr.: S.G.		Office: NY	
File No.: MBA0111433.CDR		Project No.: 77101Y	

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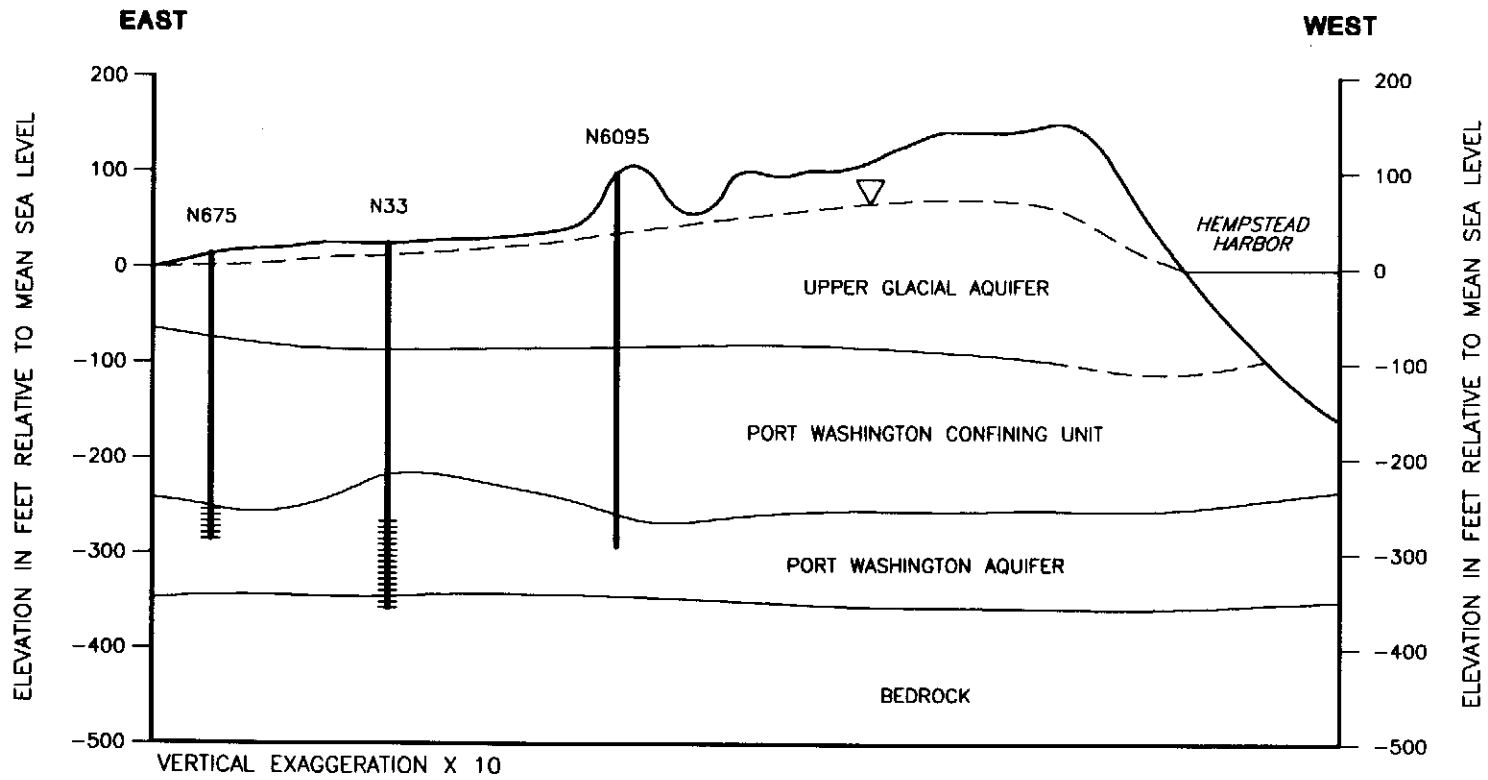


LEGEND

N675	DESIGNATION OF MONITORING/PRODUCTION WELL
▽	LOCATION OF WATER TABLE (DASHED WHERE INFERRED)
———	GEOLOGIC CONTACT
≡	WELL SCREEN INTERVAL, WHERE INDICATED

SOURCE:

CASSON, ROBERT N., U.S GEOLOGICAL SURVEY, GEOHYDROLOGY AND 1985 GROUNDWATER LEVELS ON MANHASSET NECK, LONG ISLAND, NEW YORK, WATER RESOURCES INVESTIGATIONS REPORT 88-4127, 1992.

Title:

GENERALIZED HYDROGEOLOGIC CROSS-SECTION NEAR FORMER THYPIN STEEL FACILITY MANORHAVEN, NEW YORK

FORMER THYPIN STEEL FACILITY
MANORHAVEN, NEW YORK

Prepared For:

MBA-MANORHAVEN, LLC
PRINCETON, NEW JERSEY

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: B.M.	Date: 23JUL01	FIGURE
Prepared by: G.M.	Scale: NTS	2
Project Mgr: S.G.	Office: NY	
File No: MBA0111435	Project: 77101Y	


Site Location
Port Washington North
Manorhaven
Plum Point
Tidal Flat
Seaplane Base
Toms Point
Barker Point
Sousa Jr. High Sch
Village Hall
Park
Shopping Center
Fire Sta
Sewage Disposal
St. Peters Sch
Barker Point Park
Port Washington
Nassau Knolls Cemetery
Meridian Sch
South Salem Sch
Water Tank
Golf Course
Plandome Manor
Leeds Pond
North Hempstead Country Club
KINGS POINT
Grace
All Saints Sch
J F Kennedy Sch
Nursing Home
Guggenheim Sch
Manhasset Bay
Long Island
Country Club

APPENDIX A

Correspondence by the NYSDEC and Roux Associates, Inc. Regarding Site Investigation

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region One
Building 40 - SUNY, Stony Brook, New York 11790-2356
Phone: (631) 444-0240 • **FAX:** (631) 444-0248
Website: www.dec.state.ny.us

John P. Cahill
Commissioner

October 11, 2000

Mr. Scott J. Glash, C.P.G.
Roux Associates, Inc.
1377 Motor Parkway
Islandia, NY 11788

RE: Former Thypin Steel Site V00336-1
Revised Investigation Work Plan: October 2000

Dear Mr. Glash:

The New York State Department of Environmental Conservation has reviewed the referenced work plan and hereby approves it. Please notify the Department five days prior to the start of field activities. If you should have any questions, feel free to contact me at (631) 444-0246.

Sincerely,

Jamie Ascher
Engineering Geologist 2

cc: W. Parish
D. Desnoyers
D. D'Ambrosio
S. Ervolina
K. Carpenter
C. Montroy
S. Bates

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region One
Building 40 - SUNY, Stony Brook, New York 11790-2356
Phone: (631) 444-0240 • **FAX:** (631) 444-0248
Website: www.dec.state.ny.us

John P. Cahill
Commissioner

December 7, 2000

Mr. Scott J. Glash, C.P.G.
Roux Associates, Inc.
1377 Motor Parkway
Islandia, New York 11749

RE: Thypin Steel Site V00336-1
VCP Investigation Work Plan

Dear Mr. Glash,

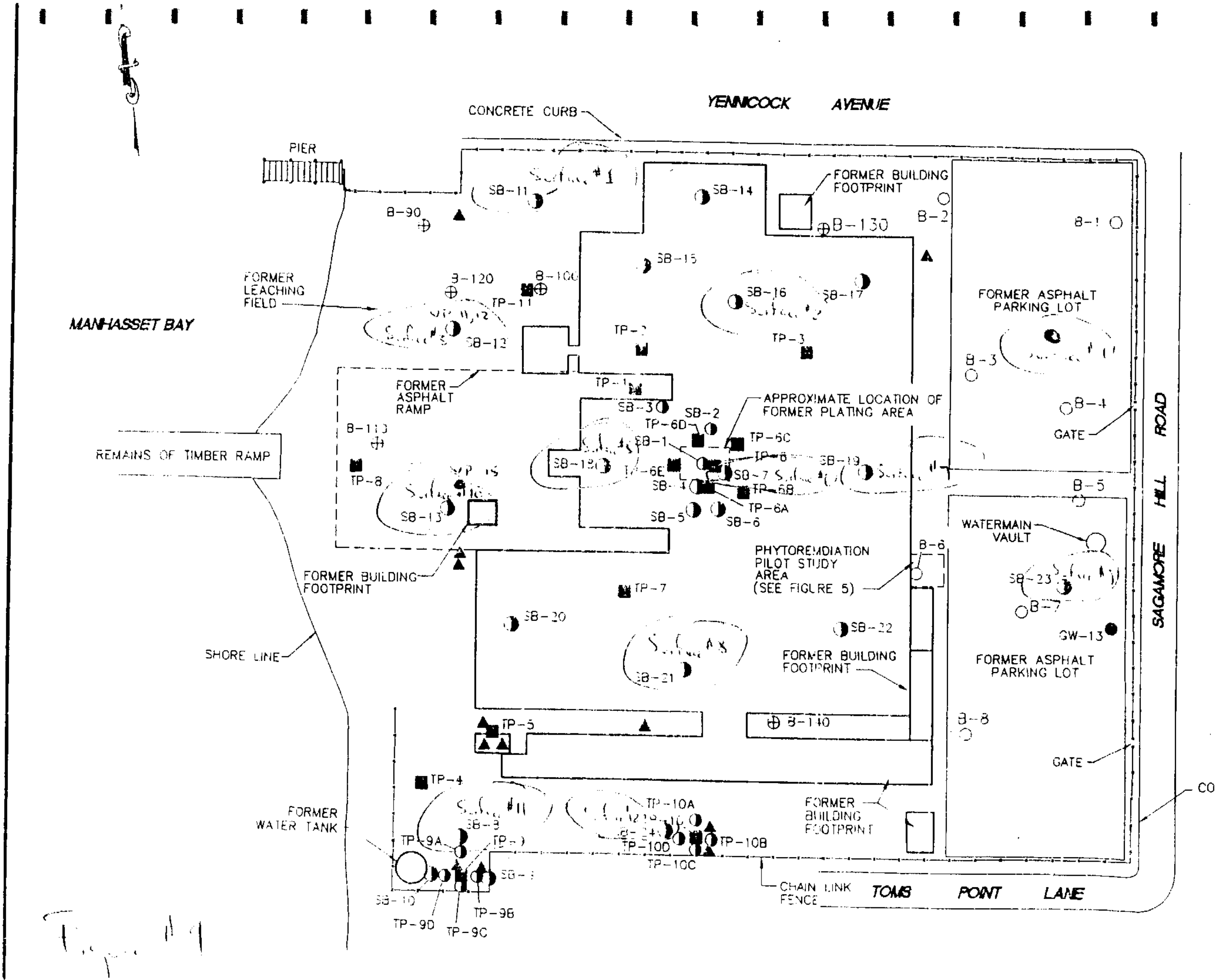
As we have previously discussed, the intended future use of the site as a residential neighborhood necessitates the acquisition of surface soil samples (0 - 2 inches) for laboratory analysis. With the concurrence of the New York State Department of Health, the attached map specifies the 12 locations at which surface soil samples should be acquired. These locations generally correspond with the deeper soil borings undertaken during the current investigation. Soil samples should be analyzed for volatile organic compounds and metals per the approved work plan.

If you should have any questions, feel free to contact me at (631) 444-0246.

Sincerely,

Jamie Ascher
Engineering Geologist 2

cc: W. Parish
G. Laccetti
K. Carpenter



YENNICOCK AVENUE
CONCRETE CURB
PIER
MANHASSET BAY
FORMER LEACHING FIELD
REMAINS OF TIMBER RAMP
FORMER ASPHALT RAMP
FORMER BUILDING FOOTPRINT
SHORE LINE
FORMER WATER TANK
APPROXIMATE LOCATION OF FORMER PLATING AREA
PHYTOREMDIATION PILOT STUDY AREA (SEE FIGURE 5)
FORMER BUILDING FOOTPRINT
FORMER BUILDING FOOTPRINT
FORMER BUILDING FOOTPRINT
FORMER ASPHALT PARKING LOT
FORMER ASPHALT PARKING LOT
WATERMAIN VAULT
GATE
GATE
CHAIN LINK FENCE
TOMS POINT LANE
SAGAMORE HILL ROAD
SB-1
SB-2
SB-3
SB-4
SB-5
SB-6
SB-7
SB-11
SB-12
SB-13
SB-14
SB-15
SB-16
SB-17
SB-19
SB-20
SB-21
SB-22
SB-23
TP-1
TP-2
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TP-4
TP-5
TP-6A
TP-6B
TP-6C
TP-6D
TP-6E
TP-7
TP-8
TP-9A
TP-9B
TP-9C
TP-9D
TP-10A
TP-10B
TP-10C
TP-10D
TP-11
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B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-90
B-100
B-110
B-120
B-130
B-140
GW-13

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region One
Building 40 - SUNY, Stony Brook, New York 11790-2356
Phone: (631) 444-0240 • **FAX:** (631) 444-0248
Website: www.dec.state.ny.us

John P. Cahill
Commissioner

February 14, 2001

Mr. Scott J. Glash C.P.G.
Roux Associates Inc.
1377 Motor Parkway
Islandia, New York 11788

RE: Former Thypin Steel Site V00336-1
Supplemental Investigation Work Plan: January 2001

Dear Mr. Glash,

The New York State Department of Environmental Conservation has reviewed the referenced work plan and hereby approves it. As we discussed at our January 12, 2001 meeting, while the immediate investigative needs regarding on-site contamination are addressed in this work plan, the Department anticipates the need for investigation of off-site groundwater as well as the collection of relevant data for the preparation of a Fish and Wildlife Impact Assessment. If you should have any questions, feel free to contact me at (631) 444-0246.

Sincerely,

Jamie Ascher
Engineering Geologist 2

cc: W. Parish
K. Carpenter
S. Bates

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region One
Building 40 - SUNY, Stony Brook, New York 11790-2356
Phone: (631) 444-0240 • **FAX:** (631) 444-0248
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

July 19, 2001

Mr. Scott J. Glash
Roux Associates, Inc.
1377 Motor Parkway
Islandia, New York 11749

RE: Former Thypin Steel Site V00336
Proposed Soil Gas Survey - July 2001

The New York State Department of Environmental Conservation has received and reviewed the proposal to conduct a soil gas survey at the referenced site. While the Department does not object to the proposal, you should be aware that the New York State Department of Health has not formally reviewed nor approved of the plan. Additionally, neither agency has had the benefit of evaluating the proposal and its applicability in relation to the investigative data currently being collected at the site under the Voluntary Cleanup Program.

While you or your client may be under severe time constraints in completing the on-site investigation, you should be aware that there may be a need in the future to collect additional environmental data to supplement the work currently being conducted.

If you should have any questions, please feel free to contact me at (631) 444-0246.

Sincerely,

Jamie Ascher
Engineering Geologist 2

cc: W. Parish
W. Gilday

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC

ROUX

1377 MOTOR PARKWAY
ISLANDIA, NEW YORK 11749 TEL: 631-232-2600 FAX: 631-232-9898

August 11, 2000

Mr. Jamie Ascher
New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
SUNY, Building 40
Stony Brook, New York 11790-2356

Dear Mr. Ascher:

Attached please find two replacement pages for the June 21, 2000 Investigation Work Plan for the former Thypin Steel, Inc. facility in Manorhaven, New York. These replacement pages include:

- Main Text, Page 28, Section 4.7 – Task 7: Data Usability Summary Report
  The first sentence was revised to include, "Data Validation Services, North Creek, New York."

- Appendix A, Page A-15, Section 5.6.2 – Laboratory Analysis
  A second paragraph was added that states, "The sample analyses will be performed by Severn Trent Laboratories-Connecticut of Shelton, Connecticut, which is a New York State Department of Health-certified laboratory."

Please call if you have any questions or require additional information.

Sincerely,

ROUX ASSOCIATES, INC.

Scott J. Glash, C.P.G.
Senior Hydrogeologist/
Project Manager

cc: Richard Thypin, MBA-Manorhaven, LLC
Andrew A. Giaccia, Esq., Chadbourne & Parke, LLP

4.6.4 Groundwater Monitoring

Comparison of the monitoring results (i.e., quality and water-level measurements) from these two wells (MW-27 and MW-28) will be used to determine the effect of the phytoremediation. The initial groundwater monitoring will be performed prior to planting. The results from this monitoring round will be used to establish background (i.e., pre-phytoremediation conditions) water elevations and groundwater quality at the pilot study test area. Subsequently, monitoring will be performed one month after planting and then quarterly thereafter for a minimum of one year (not to exceed two years) from the completion of tree planting. The results of the quarterly monitoring will be used to evaluate the effects of the trees on groundwater elevations and quality as they continue to grow. Samples will be analyzed for CVOCs using the USEPA Method 8260.

Based on our experience at other sites, we anticipate that the initial effects of the trees in the pilot study test area will be to lower the water table. As the roots of the trees become more mature, the effects of the phytoremediation will produce a decrease in organic contaminant concentrations.

4.6.5 Data Evaluation and Summary Letter Preparation

After the completion of one year of groundwater monitoring, the data (i.e., quality and water-level measurements) will be evaluated, and the results summarized in a letter. The summary letter will include a discussion of the methods performed to collect the data, analytical results, conclusions, and recommendation(s) as to whether the Phytoremediation Pilot Study should continue, be expanded or modified.

4.7 Task 7: Data Usability Summary Report

A Data Usability Summary Report (DUSR) will be prepared by Data Validation Services, North Creek, New York, in accordance with the September 1997 NYSDEC Guidance for the Development of DUSRs. The DUSR will include a data review of the raw data and the quality control parameters. The quality control parameters include custody documentation, holding times, surrogate and matrix spike recoveries, duplicate correlation, calibration standard/blank performance, instrument performance, blank contamination, matrix interferences, and method compliance. Additionally, the precision, accuracy and completeness of the data will be evaluated.

15. Relinquish to Federal Express or other courier service as appropriate. Retain airbill receipt for project records. (Note: All samples will be shipped for "NEXT DAY" delivery).
16. Telephone laboratory contact and provide him/her with the following shipment information:
    - sampler's name;
    - project name;
    - number of samples sent according to matrix and concentration; and
    - airbill number.

5.6.2 Laboratory Analysis

Analytical methods for the chemical analysis of constituents of concern have been chosen based upon DQOs to provide the highest level of data quality for the purpose of evaluating remedial alternatives. Laboratory analyses will be conducted using standard methodologies as summarized in Table A-3. Applicable QA/QC is described in Table A-4 and Table A-5 for field QC and laboratory QC, respectively. Rationale for the choice of specific analytical methods is provided in Section 7.5 of the QAPP.

The sample analyses will be performed by Severn Trent Laboratories-Connecticut of Shelton, Connecticut, which is a New York State Department of Health-certified laboratory.

5.7 Decontamination Procedures

The procedures for the decontamination of field equipment, personnel and sampling equipment are outlined in the following sections. Detailed procedures for the decontamination of field and sampling equipment are included in the SOPs provided in Attachment A-1.

In an attempt to avoid the spread of contamination, all equipment (e.g., drill rigs, drilling tools, sampling equipment, etc.) must be decontaminated at a reasonable frequency in the decontamination area. The location of the decontamination area will be determined prior to the start of operations. All wash water generated during cleaning will be collected and removed for proper disposal.

5.7.1 Drilling Equipment

The augers, drilling casings, rods, Geoprobe™, samplers, tools, and any piece of equipment that may come in contact (directly or indirectly) with the soil or groundwater, will be steam cleaned prior to set up for drilling to ensure proper decontamination. The same steam cleaning procedures will be followed for augers and sampling tools used for each borehole. All steam cleaning (decontamination) activities will be monitored and documented by Roux Associates. Specific procedures for decontaminating drilling equipment are provided in the Roux Associates' SOP for decontamination of field equipment in Attachment A-1.

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC
1377 MOTOR PARKWAY
ISLANDIA, NEW YORK 11749 TEL: 631-232-2600 FAX: 631-232-9898

October 23, 2000

Mr. James Ascher
New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
SUNY Building 40
Stony Brook, New York 11790-2356

Re: Investigation Work Plan Modification
Former Thypin Steel, Inc. Plant
Manorhaven, New York

Dear Mr. Ascher:

As discussed in our telephone conversation on October 17, 2000, Appendix A – Section 6.4.1 of the September 26, 2000 Investigation Work Plan (IWP) for the former Thypin Steel, Inc. Plant will be modified. This modification includes the elimination of dense non-aqueous phase liquid (DNAPL) field screening at Soil Borings SB-7, SB-12, SB-23 and SB-24 using a product interface probe. Please note that the absence of DNAPLs will still be verified as stated in the IWP. The absence of DNAPLs will be verified through the laboratory analysis of a soil and groundwater sample collected immediately above the first confining unit, and through a hydrophobic dye test.

Please call if you have any questions or require additional information.

Sincerely,

ROUX ASSOCIATES, INC.

Scott J. Glash, C.P.G.
Senior Hydrogeologist/
Project Manager

cc: Richard Thypin, MBA-Manorhaven, LLC
Andrew A. Giaccia, Esq., Chadbourne & Parke, LLP

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC
1377 MOTOR PARKWAY
ISLANDIA, NEW YORK 11749 TEL 631-232-2600 FAX 631-232-9898

November 14, 2000

Mr. Jamie Ascher
New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
SUNY Building 40
Stony Brook, New York 11790-2356

Re: Investigation Work Plan Modification
Former Thypin Steel, Inc. Plant
Manorhaven, New York

Dear Mr. Ascher:

As discussed in our telephone conversation on November 8, 2000, Sections 4.1 and 4.4 of the main text and Appendix A, Sections 6.1 and 6.4 of the September 26, 2000 Investigation Work Plan (IWP) for the former Thypin Steel, Inc. Plant (Site) will be modified. During the drilling and soil sample inspection at Soil Boring SB-24, a confining unit (e.g., clay layer) was not encountered at approximately 32 feet (ft) below land surface (bls) as previously anticipated. Please note that the anticipated depth (32 ft bls) to the clay was determined based on the observation of several inches of clay in one previous soil boring sampled at the Site.

As agreed, Roux Associates, Inc. will inspect soil in the four deep borings (i.e., Soil Borings SB-7, SB-12, SB-23 and SB-24) to a depth of 32 ft bls, and if clay is encountered, the IWP procedures will be followed. However, if clay is not encountered to a depth of 32 ft bls, then the soil boring will be sampled to a depth of 36 ft bls (i.e., an additional 4 ft). At this depth, whether clay is encountered or not, the IWP procedures will be followed (i.e., soil and groundwater sampling).

Please call if you have any questions or require additional information.

Sincerely,

ROUX ASSOCIATES, INC.

Scott J. Glash, C.P.G.
Senior Hydrogeologist/
Project Manager

cc: Richard Thypin, MBA-Manorhaven, LLC
Andrew A. Giaccia, Esq., Chadbourne & Parke, LLP

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC
1377 MOTOR PARKWAY
ISLANDIA, NEW YORK 11749 TEL: 631-232-2600 FAX: 631-232-9898

December 20, 2000

Mr. Jamie Ascher
Engineering Geologist 2
New York State Department of Environmental Conservation
Division of Environmental Remediation
Region One
Building 40 SUNY
Stony Brook, New York 11790-0248

Re: Additional Soil Sample Collection and Analysis for Exposure Assessment
Former Thypin Steel, Inc. Facility
Manorhaven, New York

Dear Mr. Ascher:

On behalf of MBA-Manorhaven, LLC, Roux Associates, Inc. has reviewed your December 7, 2000 letter regarding the collection and analysis of additional soil samples for Task 5: Exposure Assessment of the Investigation Work Plan. We will perform the additional sampling and analysis as specified in the December 7, 2000 letter.

We anticipate that the collection of the additional samples will be performed during the week of December 18, 2000.

Please call if you have any questions or require additional information.

Sincerely,

ROUX ASSOCIATES, INC.

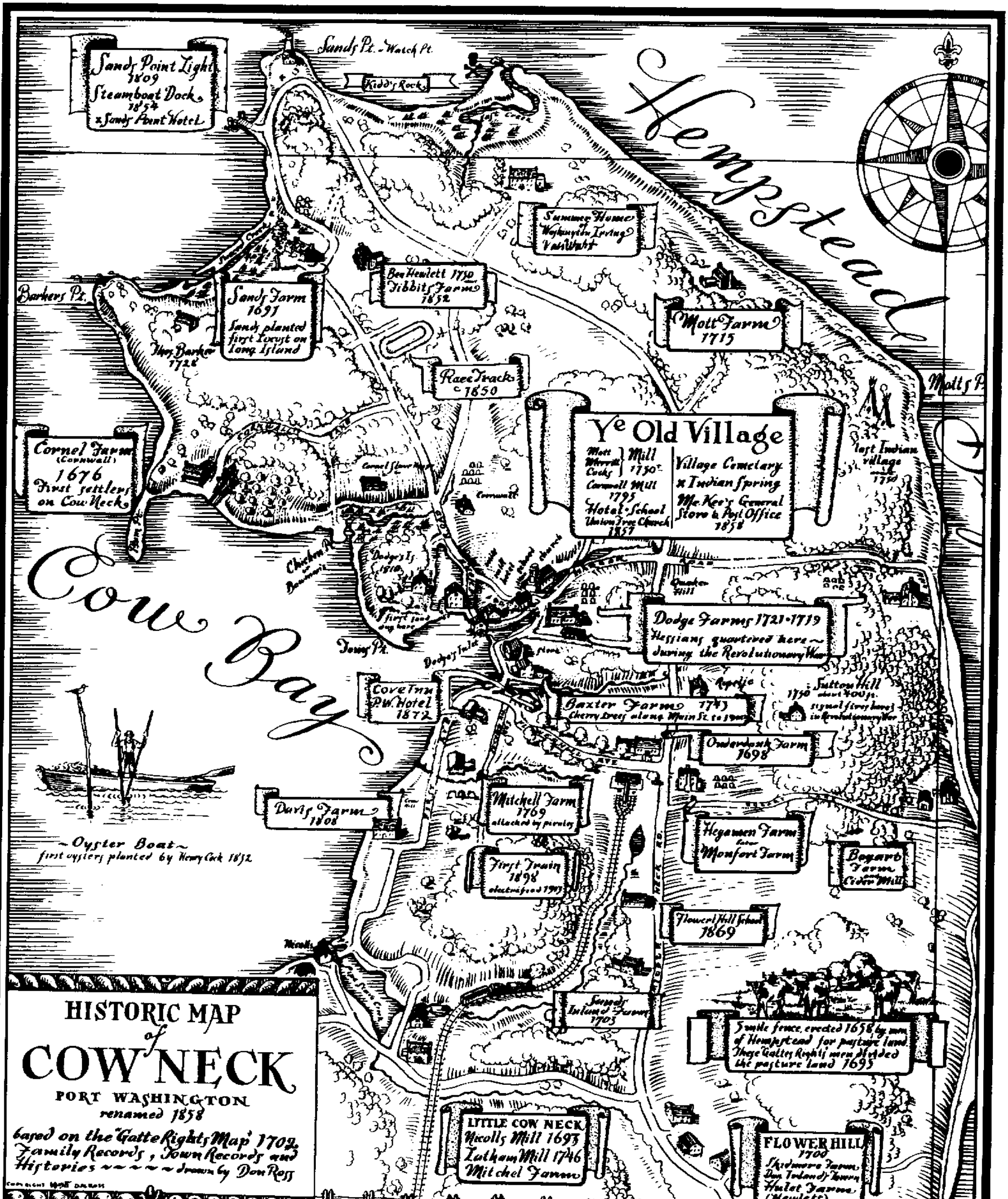
Scott J. Glash, C.P.G.
Senior Hydrogeologist/
Project Manager

Attachment

cc: Richard Thypin, MBA-Manorhaven, LLC
Andrew A. Giaccia, Esq., Chadbourne & Parke, LLP
Joseph D. Duminuco, Roux Associates, Inc.

APPENDIX C

Historic Map of Manhasset Island (Dodge Island)



Sands Point Light 1809
Steamboat Dock 1854
x Sands Point Hotel
Sands Pt. - Watch Pt.
Kidd's Rock
Hempstead
Ben Hewlett 1750
Tibbits Farm 1852
Barkers Pt.
Sands Farm 1691
Sands planted first forest on Long Island
Thos Barker 1728
Mott Farm 1715
Race Track c 1850
Motts P
Ye Old Village
Mott Merritt Cocks Mill 1750
Cornwell Mill 1795
Hotel - School
Union Free Church 1857
Village Cemetery
x Indian Spring
Mc Kee's General Store & Post Office 1858
last Indian village 1750
Cornel Farm (Cornwall) 1676
First settlers on Cow Neck
Cow Bay
Quaker Hill
Dodge Farms 1721-1779
Hessians quartered here during the Revolutionary War
Jerry's Pt.
Cove Inn
P.W. Hotel 1872
Baxter Farm 1743
Cherry trees along Main St. to 1900
Sutton Hill
signal fires here in Revolutionary War
Onderdonk Farm 1698
Davis Farm 1808
Mitchell Farm 1769
attacked by pirates
Hegamen Farm
later
Monfort Farm
Bogart Farm
Cider Mill
First Train 1898
electrified 1913
~ Oyster Boat ~
first oysters planted by Henry Cock 1832
Flower Hill School 1869
Sands Inland Farm 1703
3 mile fence, erected 1658 by men of Hempstead for pasture land. These Gatte Rights men divided the pasture land 1695
LITTLE COW NECK
Nicolls Mill 1693
Latham Mill 1746
Mitchel Farm
FLOWER HILL 1700
Skidmore Farm, Van Nostrand Farm, Hulet Farm (Hewlett)
HISTORIC MAP of COW NECK
PORT WASHINGTON renamed 1858
based on the "Gatte Rights Map" 1702, Family Records, Town Records and Histories ~ ~ ~ ~ ~ drawn by Don Ross