Voluntary Investigation Report

25 Melville Park Road
Melville, New York

December 1997

Prepared for:

WHCS Real Estate Limited Partnership
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Purpose and Scope

1.1 Introduction

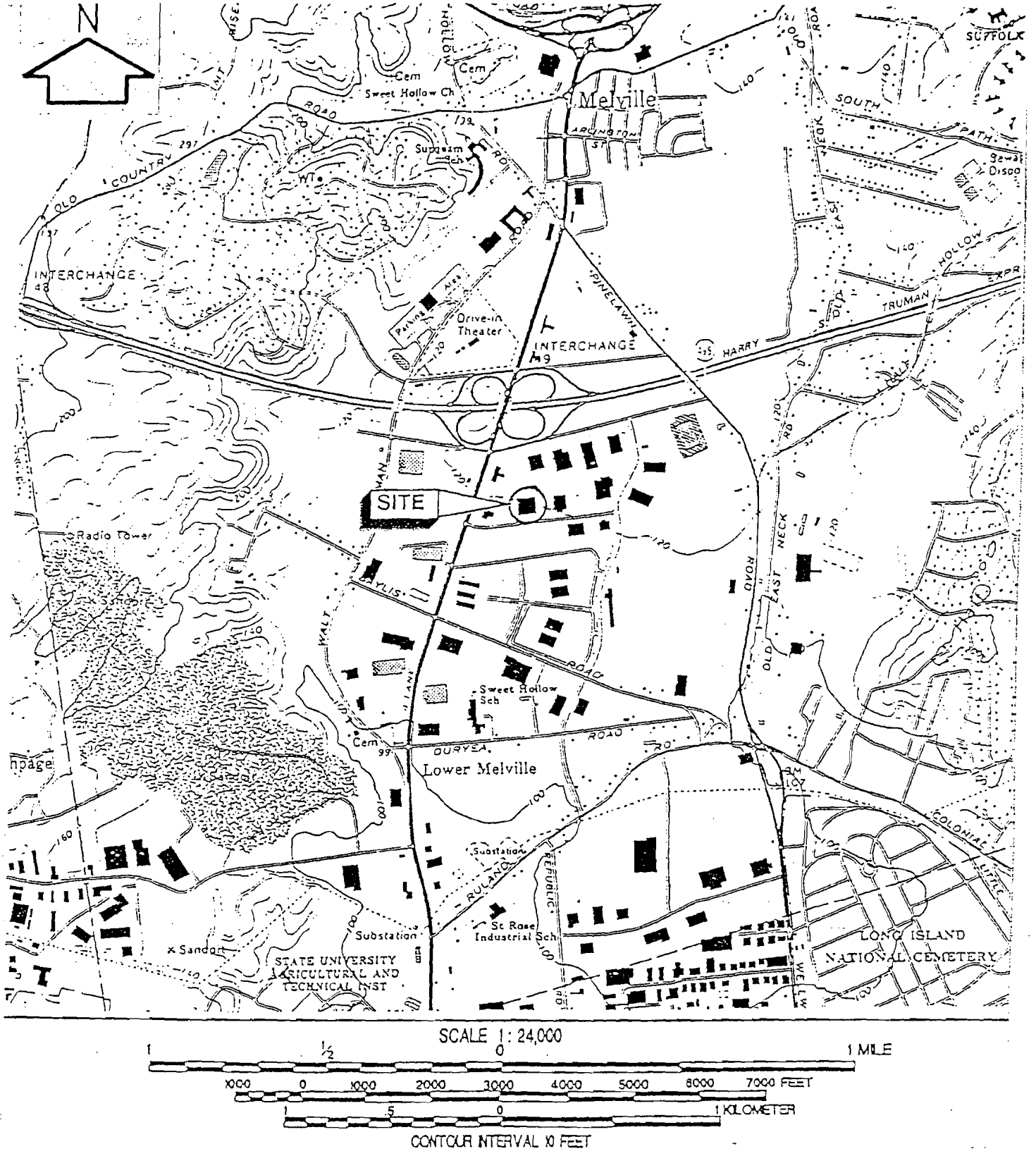
Camp Dresser & McKee (CDM) has conducted a supplemental remedial investigation for the commercial property located at 25 Melville Park Road, Melville, New York. This investigation was conducted for WHCS Real Estate L.P., and was intended to supplement several earlier investigations, investigate the suspected source area and better define the vertical extent of contamination. It is noted that WHCS is a secured lender to Delco Development Company, the current site owner, and the subject property is in receivership. WHCS has had no past history with this property or the former operations conducted there. WHCS is voluntarily pursuing the expeditious remediation of on-site source areas to meet criteria that will be acceptable to WHCS and the NYSDEC and to enhance the value of the property. The purpose of this remedial investigation was to fully characterize the site contamination and address NYSDEC comments on prior remedial investigations in order to identify reasonable remedial actions. Specifically, information from soil borings, groundwater samples and soil samples would be used to further evaluate the nature and extent of impacted soils and groundwater. CDM has reviewed pertinent information from previous investigations and incorporated relevant and pertinent information into this report. The information from previous investigations is contained in the following reports:

- Phase I Environmental Site Assessment (AquaTerra, March 1993)
- Phase I Environmental Site Assessment with Subsurface Investigation (Fugro East, January 1995)
- An Additional Subsurface Investigation and Ground Penetrating Radar Letter Report (Fugro East, January 1995)
- Additional Subsurface Investigation and Ground Penetrating Radar letter report (Fugro East, October 1995)
- Petrex Soil Gas Survey Report (NERI, Rizzo Assoc., November 1995)
- Preliminary Remedial Action Plan (ERI, May 1996)
- Work Plan for Voluntary Cleanup Action (ERI, August 1996)

1.2 Site Description

The property is located slightly south and east of the intersection of Broadhollow Road (Route 110) and the Long Island Expressway (Route 495) in the Village of Melville, Suffolk County, Long Island, New York (figure 1-1). Route 495 (the Long Island Expressway) is located an estimated 1,000 feet north of the property. Surrounding properties are classified as industrial and commercial.

Presently, the property is occupied by a two-story office building and parking facilities. As of September, 1997 building occupants included Northville Industries Corporation and National Securities, Inc. The building is served by municipal water and is heated by natural gas. The property is served by two on-site septic systems located south of the building. The nearest public water supply well was identified approximately one-half mile north of the site. Two additional



SOURCE: Fugro.

Figure 1-1
Site Location
25 Melville Park Road, Melville, New York

wells are located an estimated one mile south-southwest of the site. The property is located within the South Huntington Water District.

Historically, the property was occupied by the New York Twist Drill Company (NYTD). NYTD was present on-site from 1966 (when the building was originally constructed) through 1984. NYTD manufactured high-speed carbon and carbide drills. After NYTD vacated the building, it was converted into a two-story office complex. This renovation involved the expansion of the building footprint to the southeast (Figure 1-2).

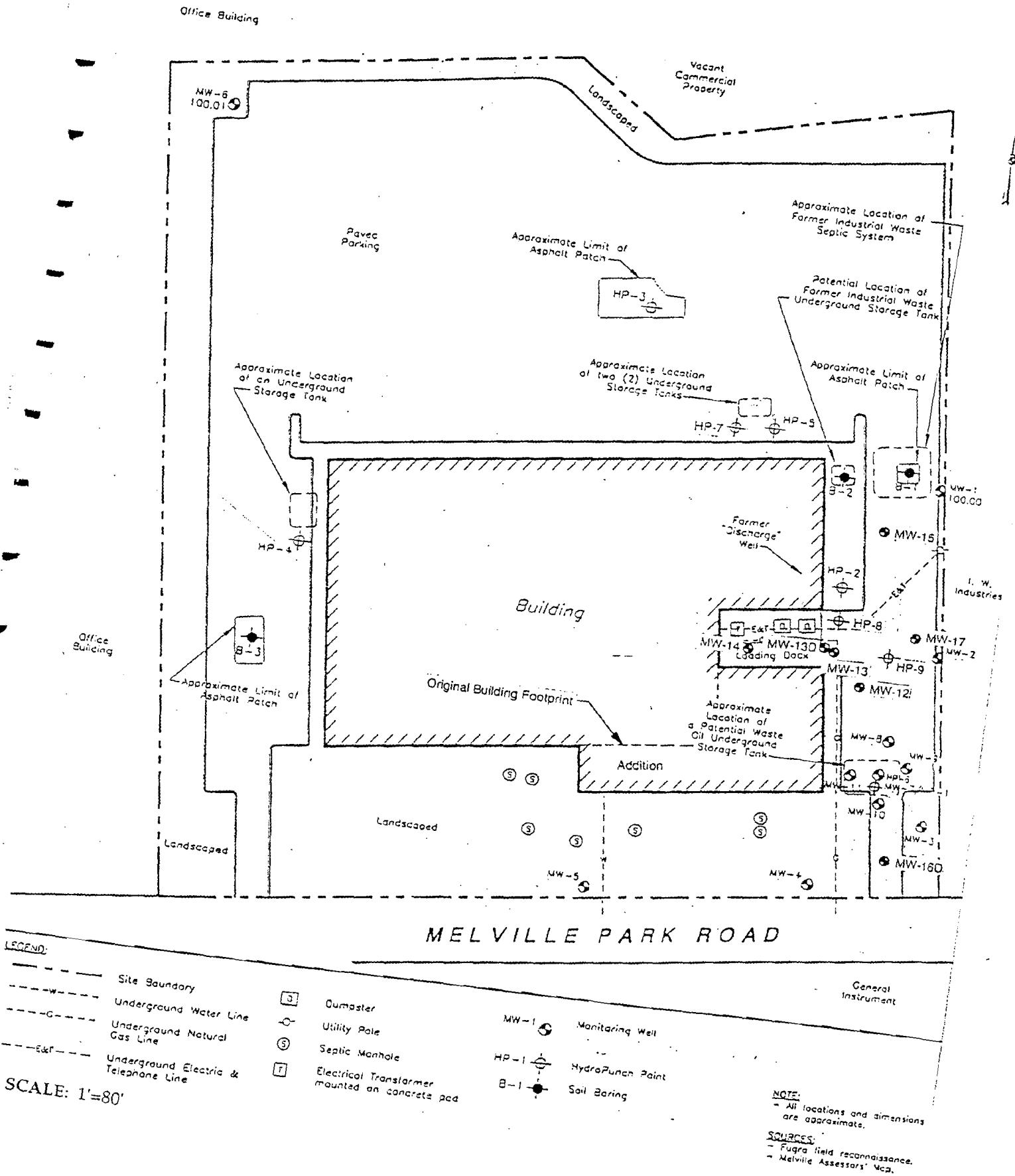
According to the Article 12 Tank Registry (No. 4-0264, File Reference 4-2056) maintained by the Suffolk County Department of Health Services (SCDHS), NYTD operated ten (10) above ground and below ground storage tanks and one (1) drum storage facility. Four of the ten tanks were below ground. The remaining six tanks were used in the manufacturing process and were located inside the building. The drum storage area, according to a hand drawn sketch located in the SCDHS was exterior to the building.

A SCDHS tank registry dated February 21, 1997 shows all ten tanks and the drum storage area to have been either removed or abandoned between 1989 and 1991. Geophysical data produced by previous site investigators, suggested that three of the tanks which were reported to have been removed were actually abandoned in place. Additionally, the evaluation of a NYTD floor plan included a hand drawn sketch which identified a floor drain leading to another waste oil underground storage tank (UST). This UST was removed circa 1993 with its location indicated by an asphalt patch near the southeastern corner of the building. The SCDHS tank registry does not contain an entry for this tank or its removal. Previous reports have also identified a former "discharge or diffusion well" located near the north side of the entrance to the east loading dock. Reportedly, the use of the "diffusion well" was discontinued around 1981. The diffusion well was reportedly used for disposal of non-contact cooling water. Information obtained through Rizzo Associates suggests the well is 114 feet deep with a presumed screen interval of 94 to 114 feet below grade (fbg).

1.3 Site Geology and Hydrogeology

The site is underlain by thick, unconsolidated deposits of clay, silt, sand, and gravel that rest on a southward dipping crystalline bedrock. The deeper units were deposited during the Cretaceous Period (63-138 million years ago), and form (in ascending order) the Raritan and Magothy Formations. During the Tertiary Period (2 to 63 million years ago), any additional deposits overlying the Magothy Formation were eventually eroded away by glacial activity. During the Pleistocene Epoch (1.8 million years ago to 10,000 years ago), glacial melt water deposited outwash material forming what is presently known as the Upper Glacial aquifer.

Bedrock beneath the site is found at an approximate elevation of 800 feet below mean sea level (msl). The Lloyd aquifer overlies bedrock, and has a surface elevation of approximately 600 feet below msl. The Lloyd aquifer is a source of water for some south shore communities and consists of moderate to high permeability sands.



CDM Camp Dresser & McKee

SOURCE: Fugro.

Figure 1-2
Site Plan
25 Melville Park Road, Melville, New York

The Raritan clay is a major clay unit separating the Magothy aquifer from the Lloyd aquifer. Beneath the site, it is found between 400 and 600 feet below msl.

Above the Raritan Clay, the Magothy aquifer (50 feet above to 400 feet below msl) forms the major water bearing unit, consisting of sand and gravel deposits with minor lenses of silt and clay throughout. The contact between the Upper Glacial aquifer and the Magothy aquifer occurs at approximately 50-100 feet above mean sea level at the site. The Upper Glacial aquifer corresponds to the saturated upper part of the highly permeable Pleistocene deposit of sand and gravel.

A review of local well logs (provided by the Suffolk County Department of Health Services) indicates that the overburden geology in the site area consists mostly of brown to gray fine to coarse sand with thin interbeds of clay. Solid gray clay was encountered at 293 fbg in a well drilled south of Melville Park Road.

As part of this supplemental investigation deep soil borings were advanced and monitoring wells installed. Described later in this report, deep soil borings confirmed that no significant clay layers exist beneath the site. Minor clay lenses were identified at a depth of 63-64 fbg at soil borings HGB-1 and HGB-5 and again at approximately 160 fbg in the boring for MW-19D. Boring/well logs are presented for each deep borehole in appendix A.

1.4 Investigations Prior to CDM Involvement (Voluntary Agreement)

Several previous environmental investigations have been performed on the subject site. These include:

- A Phase I Environmental Site Assessment performed by Aqua Terra dated March 1993;
- A Phase I Environmental Site Assessment with Subsurface Investigation performed by Fugro East, Inc. dated January 1995;
- An Additional Subsurface Investigation and Ground Penetrating Radar Letter Report by Fugro East dated January 1995;
- An Additional Subsurface Investigation by Fugro East, Inc. dated October 1995;
- Findings of the Petrex Soil Gas Survey Report by Northeast Research Institute and Rizzo Associates dated November 1995;
- Preliminary Remedial Action Plan compiled by Environmental Remediations Inc. dated October 1996.

1.4.1 Investigations by Fugro East

Fugro East, Inc. ("Fugro") performed a preliminary geophysical (ground penetrating radar/ magnetometer) survey in January 1995 and identified two magnetic anomalies. One of the anomalies was interpreted as a 10,000 gallon fuel oil UST located on the northwestern side of the

building. The second anomaly was interpreted as the two abandoned 2,500 gallon industrial waste USTs. A second Ground Penetrating Radar survey by Fugro confirmed these subsurface anomalies.

A hydropunch and well boring survey was conducted by Fugro in December 1994. Six hydropunch well points and three borings were advanced. In addition, six existing wells were identified on the property. Several soil samples from each borehole were analyzed for total petroleum hydrocarbons (TPH) via gas chromatograph/flame ionization detector (GC/FID), 13 priority pollutant metals, cyanide and pH. Ten groundwater samples were analyzed for volatile organic compounds (VOCs) via Method 8260 and TPH via GC/FID. Seven of the samples were also analyzed for dissolved priority pollutant metals, cyanide, and pH.

One soil sample extracted from boring B-2 had a concentration of mercury [1.8 milligrams per kilograms (mg/kg)] which exceeds NYSDEC recommended cleanup levels for soil. Boring B-2 was located in the former industrial UST area west of the former industrial septic system located near the northeastern corner of the building (see Figure 1-2). The depth of this soil sample corresponded to the depth of the water table (50-51 fbg).

The groundwater analytical results indicated that the area near the former waste oil UST (southeastern corner of the building) was contaminated with trichloroethene (TCE) and tetrachloroethylene (PCE). One groundwater sample (HP-2) had PCE and TCE levels of 15,000 and 1,100 ug/L, respectively. Groundwater beneath the property was encountered between 49 and 50 fbg. Fugro estimated the groundwater flow direction to be towards the south/southeast.

Supplemental soil and groundwater sampling was conducted by Fugro in January 1995. One additional hydropunch sample and one monitoring well were advanced. In addition, three borings were drilled. All of this additional sampling was conducted in the area of the former waste oil UST (where the elevated PCE and TCE levels were detected). Eleven soil samples were submitted for laboratory analysis and analyzed for TPH and VOCs via GC/FID and Method 8260, respectively. The soil sample depths ranged from 5 to 50 fbg. No VOC or TPH contamination was detected in the soil samples.

Fugro submitted three additional groundwater samples for analyses. One hydropunch point (HP-6) was collected at 73 fbg. The analytical results indicated that higher levels of VOCs were detected near the water table at approximately 52 fbg (12,600 ug/L PCE) as compared to the deeper portion of the aquifer (7,300 ug/L PCE) at 73 fbg.

Four additional groundwater monitoring wells (MW-8 through MW-11) were installed by Fugro near the former waste oil UST in May 1995. Groundwater samples collected from these wells were analyzed for VOCs via Method 8260. The highest VOC values (TCE equaling 12,900 ug/L and PCE equaling 31,700 ug/L) were detected approximately 30 feet north of the former waste oil UST in well MW-8.

1.4.2 Investigation by Northeast Research Institute and Rizzo Associates

A soil gas survey was conducted on the property by Northeast Research Institute and Rizzo Associates in November 1995. Thirty seven shallow soil gas sampling points were installed on the

east side of the building. The results indicated high PCE concentration near the loading dock. The highest reading for TCE was detected just north of well MW-8. The sum of the previous investigations indicated that the source of the PCE and TCE groundwater contamination is located north of the former waste oil UST and south of the former septic system. The results of the soil gas survey suggested that the loading dock area may be the source of the PCE groundwater contamination.

1.4.3 Site Investigation of 1996

Subsurface Investigation Conducted by ERI February-March 1996

All onsite investigative work during 1996 was performed by Environmental Remediation, Inc. (ERI) of East Hartford, CT. ERI advanced four soil borings in the area of the former industrial septic system and the associated former 200 gallon UST (see Figure 1-2). Selected soil samples were collected at various depth intervals and analyzed for VOCs via Method 8260, TPH via GC/FID (extractables) and for Resource Conservation and Recovery Act (RCRA) Metals. The goal of this portion of the study was to confirm and/or delineate the mercury contamination detected in boring B-2 and to evaluate if any VOC contamination existed near the former industrial waste septic system.

Four additional groundwater wells (MW's 12, 13, 14 and 15) were installed by ERI north of MW-8 to evaluate the loading dock, the former discharge well area and the area north of MW-8 as a possible source of the VOC contamination. In addition, a second goal of this groundwater study was to define the horizontal extent of the VOC contamination. Groundwater samples were collected from the monitoring wells and analyzed for VOCs via Method 8260.

In addition to the groundwater samples, selected soil samples from the boreholes of the four newly installed monitoring wells were also submitted for laboratory analysis. Although no VOCs were detected in soil samples collected during previous sampling events in the area of high groundwater VOC contamination, these additional soil samples were collected to confirm the absence of soil VOC contamination. Seven soil samples from the monitoring well borings were submitted for the VOC analysis via Method 8260 and TPH via GC/FID (extractables). Due to insufficient sample volume (recovery), the sample collected from MW-13 at 45-47 fbg was only analyzed for VOCs. Results of the analysis are discussed below.

Subsurface Investigation Conducted by ERI July 1996

Two deep groundwater monitoring wells were installed by Environmental Remediation, Inc. (ERI) to establish the vertical extent of the contamination. One well (MW-16D) was placed near the southern property border to monitor the deep groundwater and to evaluate whether contamination was moving off-site. A second well (MW-13D) was installed adjacent to MW-13 to evaluate the vertical extent of the groundwater contamination in the vicinity of the suspected source. The wells were extended to approximately 90 fbg.

One additional water table well (MW-17) was also installed near a potential source area identified in the eastern parking lot. A metal detector was used to identify the potential source. The monitoring well was installed directly downgradient of the detected anomaly.

Several additional hydropunch groundwater samples were collected. Two hydropunch points were advanced to approximately five feet below the water table in the vicinity of MW-13. The purpose of these wells was to evaluate the source area of the contamination surrounding MW-13. One hydropunch groundwater sample (HP-7) was collected north of the building and west of existing hydropunch point, HP-5, to evaluate the area downgradient of the second abandoned waste oil UST.

All of the samples collected were analyzed for halogenated VOCs via Method 8010. In addition, the groundwater sample collected from well MW-17 was analyzed for total RCRA metals.

Summary of Soil Boring and Monitoring Wells

ERI drilling activities were conducted February/March and July of 1996. Fifteen (15) soil borings were advanced, seven of which were completed as groundwater monitoring wells (MWS 12, 13, 14, 15, 13D, 16D and 17). Three hydropunches were used to collect groundwater samples. Borings and monitoring wells were located as follows (See Figure 1-2):

- MW-12: Monitoring well MW-12 was installed to evaluate soil and groundwater conditions upgradient of an area of documented groundwater contamination MW-8, and in the area of elevated soil gas concentrations of PCE. MW-12 was screened above a clay layer, which was encountered at a depth of approximately 56.5 fbg. This clay layer was not encountered in any of the subsequent soil borings.

- MW-13: Monitoring well MW-13 was located just east of the east loading dock. The purpose of the well was to evaluate soil and groundwater conditions downgradient of a potential source of contamination, the former "discharge well," and in the area of elevated soil gas concentrations of PCE.

- MW-14: Monitoring well MW-14 was installed immediately east of the loading dock. The purpose of the well was to evaluate soil and groundwater conditions in the vicinity of a potential release area, the loading dock.

- MW-15: Monitoring well MW-15 was installed east of the loading dock and the suspected location of the "discharge well". The purpose of this well was to evaluate soil and groundwater conditions associated with and potentially upgradient of the former discharge well.

- MW-13D: Monitoring well MW-13D was installed directly west of well MW-13 to evaluate the vertical extent of the soil and groundwater contamination in the vicinity of the contamination source.

- MW-16D: Monitoring well MW-16D was installed near the southern property border. The purpose of this well was to evaluate whether any contamination was moving off-site.

- MW-17: Monitoring well MW-17 was installed east of the loading dock and the suspected location of the "discharge well". The purpose of this well was to evaluate soil and groundwater conditions associated with a metallic anomaly identified in the east parking area.

- SB-7: Soil boring SB-7 was installed in the vicinity of the former industrial waste septic system leaching area. The purpose of the boring was to further delineate the extent of soil contaminated by mercury, and to evaluate the soil for the presence of VOCs. Refusal (possibly an old septic system pipe) was encountered at a depth of approximately 5.5 fbg, and the boring was abandoned.

- SB-7A: Soil boring SB-7A was installed adjacent to the abandoned boring SB-7 to collect samples below the depth of refusal which was encountered in boring SB-7. As with SB-7, the purpose of the boring was again to further delineate the extent of soil contamination by mercury, and to evaluate the soil for the presence of VOCs in the vicinity of the former industrial waste septic system leaching area.

- SB-8: Soil boring SB-8 was installed in the northern vicinity of the presumed former industrial waste septic system holding tank. The purpose of the boring was to further delineate the mercury contaminated soil, and to evaluate the soil for the presence of VOCs.

- SB-9: Soil boring SB-9 was installed in the vicinity of the presumed southern portion of the former industrial waste septic system holding tank. The purpose of the boring was to further delineate the mercury contaminated soil, and to evaluate the soil for the presence of VOCs.

- SB-10: Soil boring SB-10 was installed in the vicinity of the former industrial waste septic system. The purpose of the boring was to further delineate the extent of soil contamination and to evaluate the soil for the presence of VOCs.

- HP-7: Hydropunch Point HP-7 was advanced south of the western abandoned 2,500 gallon waste oil tank located north of the building and a groundwater sample was collected to evaluate the condition of the groundwater downgradient of this second tank.

- HP-8: Hydropunch Point HP-8 was advanced northeast of well MW-13. The purpose of collecting a groundwater sample from this location was to evaluate the source of the contamination.

- HP-9: Hydropunch Point HP-9 was advanced east of well MW-13. The purpose of collecting a groundwater sample from this location was to evaluate the source of the contamination.

The soil and groundwater investigation was performed using a truck mounted drill rig and the hollow stem auger (4.25 inch inside diameter) drilling technique. Split spoon samples were collected from the surface and at various depth intervals. In the deeper wells (MW-13D and MW-16D), clean water was added to keep the boring open below the water table. The samples were field screened both immediately after retrieval and by the head space method using an HNu-photoinization detector (PID) for VOCs.

Monitoring wells were constructed using two-inch diameter, flush-jointed polyvinyl chloride (PVC) well casing with a ten foot screen length of 10 slot PVC screen. The annular space surrounding each well screen was filled with Morie equivalent No. 2 inert silica filter gravel to an elevation two feet above the top of the screen. Above the sand, a two foot bentonite seal was placed to seal the well

from the formation above. A concrete collar was poured around a flush-mounted, protective steel case to secure the wells.

Groundwater Elevation Surveys and Flow Direction Measurements

The monitoring wells were surveyed relative to an arbitrary datum, and water level measurements were collected at the time of the groundwater sampling on March 4, and on July 29, 1996 using an electronic air/water interface. The surveyed well elevations and water level data were then used to calculate the direction of groundwater flow. The direction of flow was calculated to be toward the south/southwest in the vicinity of the east loading dock on March 4 and towards the south/southeast on July 29, 1996. The groundwater gradient was calculated to be 0.001 during both measurement events. Based on the groundwater flow measurements and the distribution of contaminants over the site, it appears that the overall groundwater flow is towards the south/ southeast.

Results of Soil Sampling and Analysis

February-March 1996

The four soil borings which were completed as monitoring wells in the vicinity of the loading dock and former discharge well were advanced to approximately 55-57 fbg. Each of the four borings performed in the vicinity of the former industrial waste septic system and tank were advanced to a depth of 20 fbg. The material encountered at the site generally consisted of light brown to light tan, fine to coarse sand and gravel deposits. A light, tan, coarse sand and gravel deposit was encountered in three of the four borings which were completed as monitoring wells, ranging from 48.5 fbg (MW-14) to approximately 55 fbg (MW-12, MW-13). A discontinuous medium gray clay unit was also observed at 56.5 fbg in MW-12.

Elevated levels of VOCs were detected in the soil samples analyzed. Laboratory analysis of the monitoring well soil samples revealed the presence of PCE above the NYSDEC soil cleanup objective of 1,400 micrograms per kilogram (ug/kg) in the sample collected from MW-13 at 54-54.7 fbg (30,000 (ug/kg)). TPH extractables representing diesel fuel, No.2 fuel oil and lubricating oil were also detected in the samples collected from MW-12 at 45-47 fbg and MW-13 at 54-54.7 fbg.

Samples collected from the soil borings in the vicinity of the former industrial waste septic system exhibited relatively low levels of contaminants. Constituents detected included TPH extractables resembling lubricating oil (21 mg/kg, SB-9 at 20-22 fbg), Nos. 4 and 6 heating oils (250 mg/kg, SB-10 at 05-07 fbg), and total metals including arsenic (0.5-2.5 mg/kg), barium (20-489 mg/kg), chromium (8 mg/kg), lead (0.5-2.1 mg/kg) and silver (2 mg/kg). Only barium exceeded the NYSDEC recommended cleanup objective of 300 mg/kg.

July 1996

Four soil samples were analyzed from the MW-13D soil boring. Boring MW-13D was extended to 90 fbg (40 feet below the water table). Soil samples collected from 45 fbg, 62 fbg, 67 fbg, and 75 to 77 fbg were submitted for laboratory analysis. PCE was detected in the 45 fbg sample (collected above water table) at 1,000 ug/kg. By comparison, PCE was detected in the 62 fbg sample at 200 ug/kg. No PCE was detected in either of the deeper samples.

Results of Groundwater Sampling and Analysis

February-March 1996

The four groundwater samples collected from monitoring wells MW-12, MW-13, MW-14, and MW-15 were analyzed for VOCs according to EPA method 8260. VOCs were detected in all four groundwater samples, ranging from 253 ug/L total VOCs (MW-15) to 72,400 ug/L total VOCs (MW-13) (figure 1-3). PCE (figure 1-4) was detected in all four samples above the NYSDEC water quality standard of 5 ug/L, at 17,000 ug/L in MW-12; 59,000 ug/L in MW-13; 360 ug/L in MW-14 and 253 ug/L in MW-15. Additional constituents detected in all four samples above the water quality standards included TCE (63 to 7,600 ug/L), 1,1,1-trichloroethane (TCA) (13 to 1,300 ug/L), and cis-1,2-dichloroethene (13 to 4,500 ug/L) (figures 1-5, 1-6 and 1-7). The sample collected from MW-12 contained additional constituents above NYSDEC standards including 1,1-dichloroethene (30 ug/L), trans-1,2-dichloroethene (15 ug/L), ethyl benzene (22 ug/L), toluene (16 ug/L), 1,2,4-trimethylbenzene (76 ug/L), 1,3,5-trimethylbenzene (35 ug/L), O-xylene (110 ug/L) and P, M-xylene (120 ug/L). In addition, 1,1-dichloroethene (14 ug/L) and trans-1,2-dichloroethene (5 ug/L) were detected equal to or above the standard in the sample collected from MW-15 and MW-14, respectively.

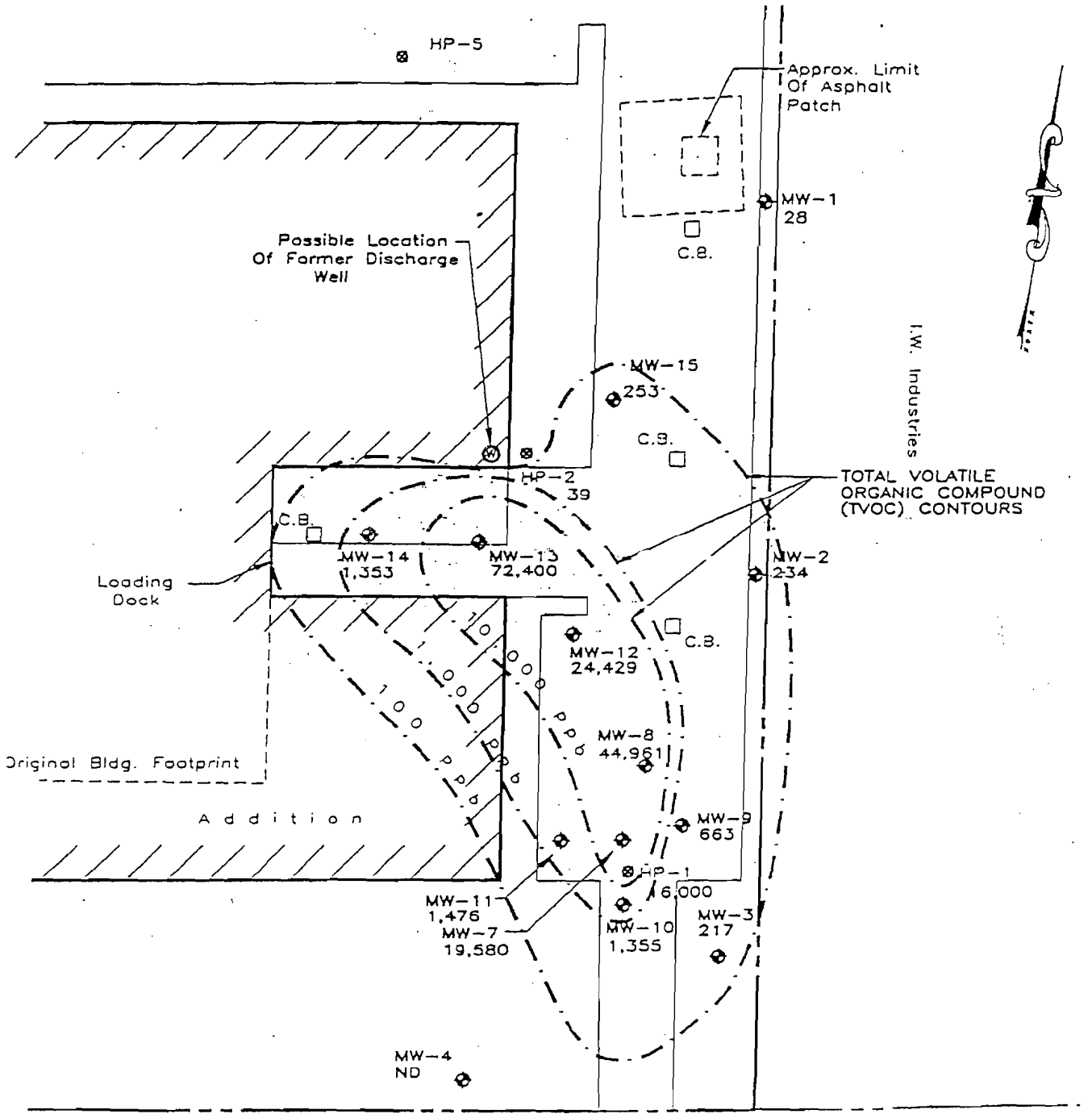
July 1996

Hydropunch groundwater samples were collected from selected monitoring wells at various depth intervals (61, 76 and 86 fbg) from well MW-16D. Well MW-16D is located near the southern property boundary. The 61 fbg groundwater sample (collected near the water table) had a concentration of 300 ug/L PCE. The 76 fbg groundwater sample had a concentration of 9,800 ug/L PCE detected. The deepest groundwater sample (collected at 86 fbg) had a level of 2,600 ug/L PCE detected.

In addition to the hydropunch samples collected near the property border, two hydropunch groundwater samples (HP-8 and HP-9) were collected near the suspected source of the contamination (see figure 1-2). PCE was detected in HP-8 in concentrations of 30,500,000 ug/L. In HP-9, PCE was detected at 122,100 ug/L. Trichloroethane (TCA) and TCE were also detected in these two hydropunch groundwater samples. TCA was detected as high as 142,700 ug/L (HP-8) and TCE as high as 498,300 ug/L (HP-8).

One hydropunch groundwater sample (HP-7) was collected north of the building and downgradient of the second abandoned waste oil UST. PCE was detected in concentrations of 16 ug/L.

To supplement the hydropunch groundwater samples, three groundwater samples were collected from the two deep monitoring wells (MW-13D and MW-16D) and one water table well MW-17 located in the eastern parking lot. PCE was detected in the MW-13D groundwater sample at a level of 5,800 ug/L. In MW-16D, (near the southern property border), PCE was detected at 1,200 ug/L. The PCE concentration in MW-17 was 21 ug/L. In addition, relatively low levels of arsenic, barium, chromium and lead were detected in an unfiltered groundwater sample collected from MW-17.



19,580 Denotes highest level detected to date showing Total Volatile Organic Concentrations in groundwater (ppb)

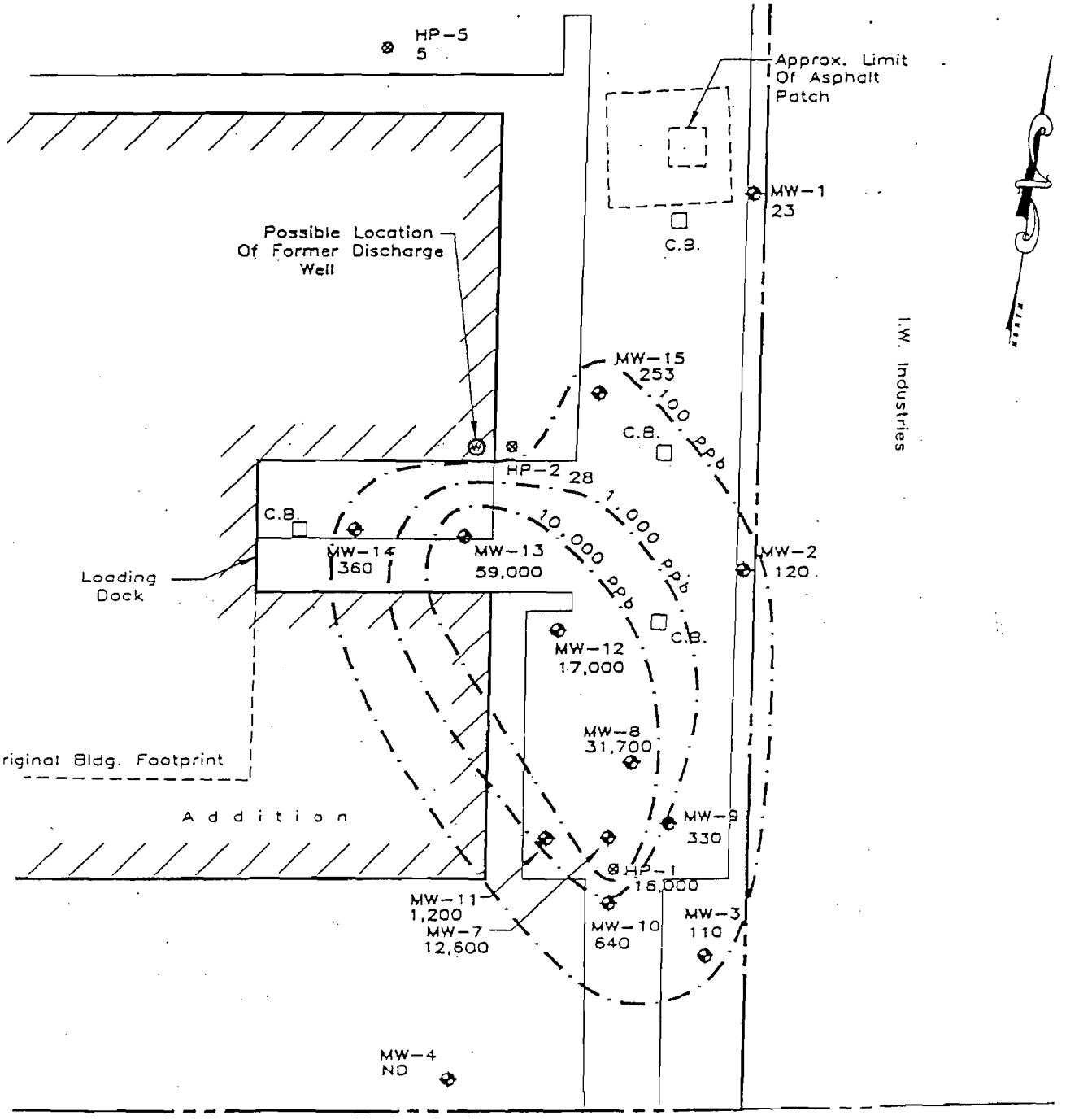
40 0 40

scale feet

10278-20942/TSK4 *Issued: June 1997.*

SOURCE: ERI, East Hartford, Connecticut.

Figure 1-3
1996 TVOC Concentrations In Groundwater
25 Melville Park Road, Melville, New York



10278-20942/TSK4 *Issued: June 1997.*

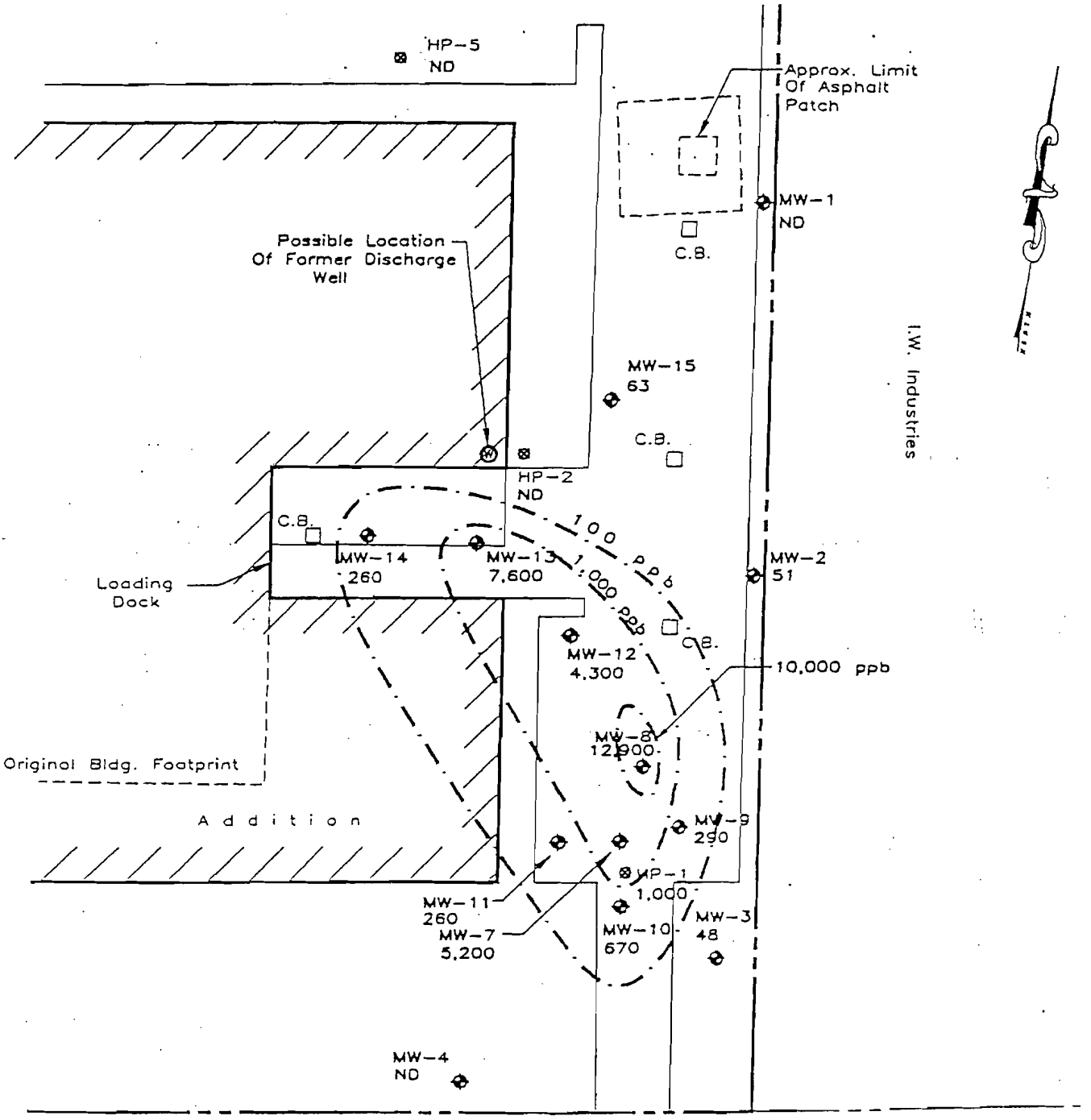
40 0 40

scale feet

SOURCE: ERI, East Hartford, Connecticut.

Figure 1-4
1996 PCE Concentrations In Groundwater
25 Melville Park Road, Melville, New York

CDM Camp Dresser & McKee



40 0 40

scale feet

10278-20942/TSK4 *Issued: June 1997.*

SOURCE: ERI, East Hartford, Connecticut.

Figure 1-5
1996 TCE Concentrations In Groundwater
25 Melville Park Road, Melville, New York

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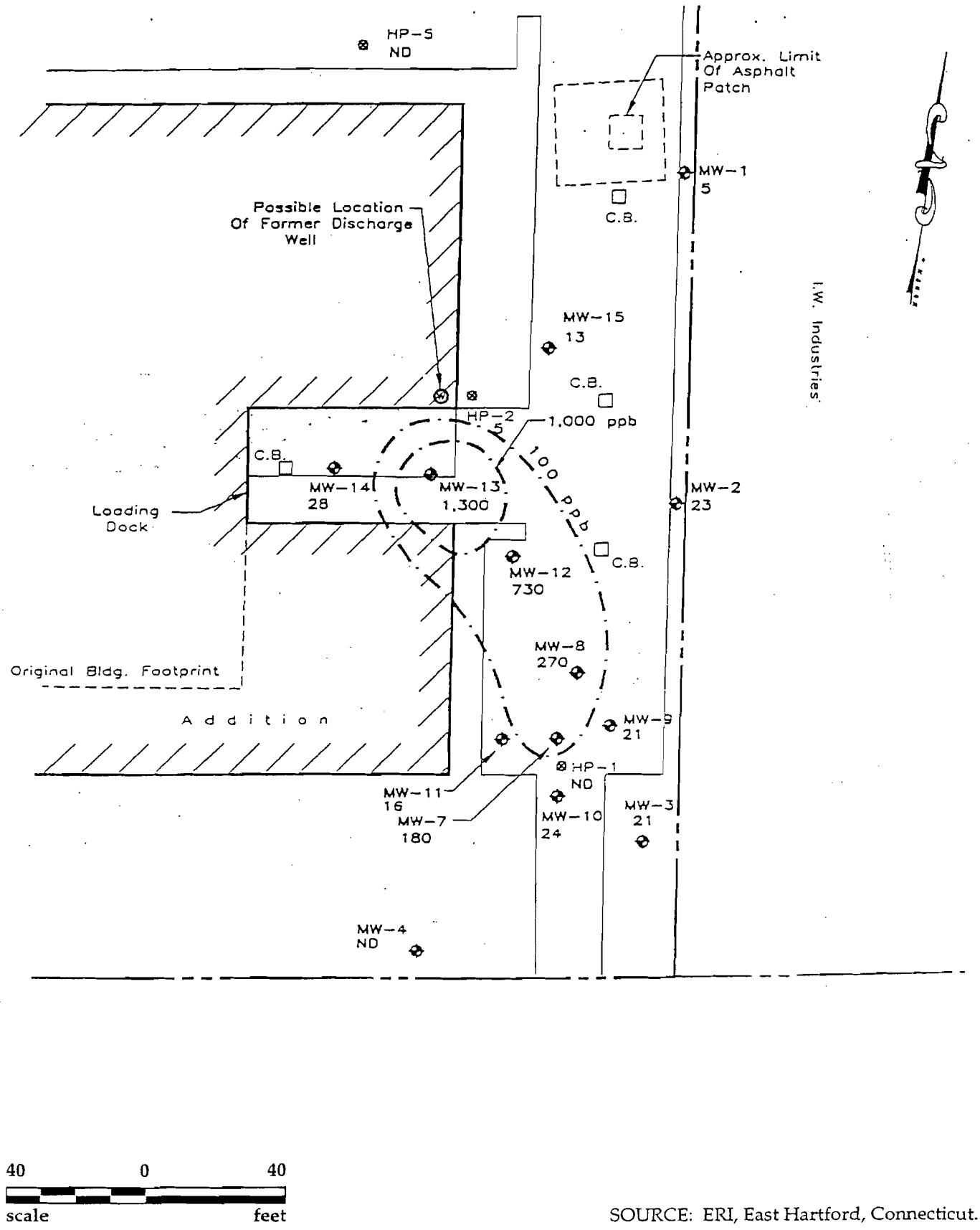
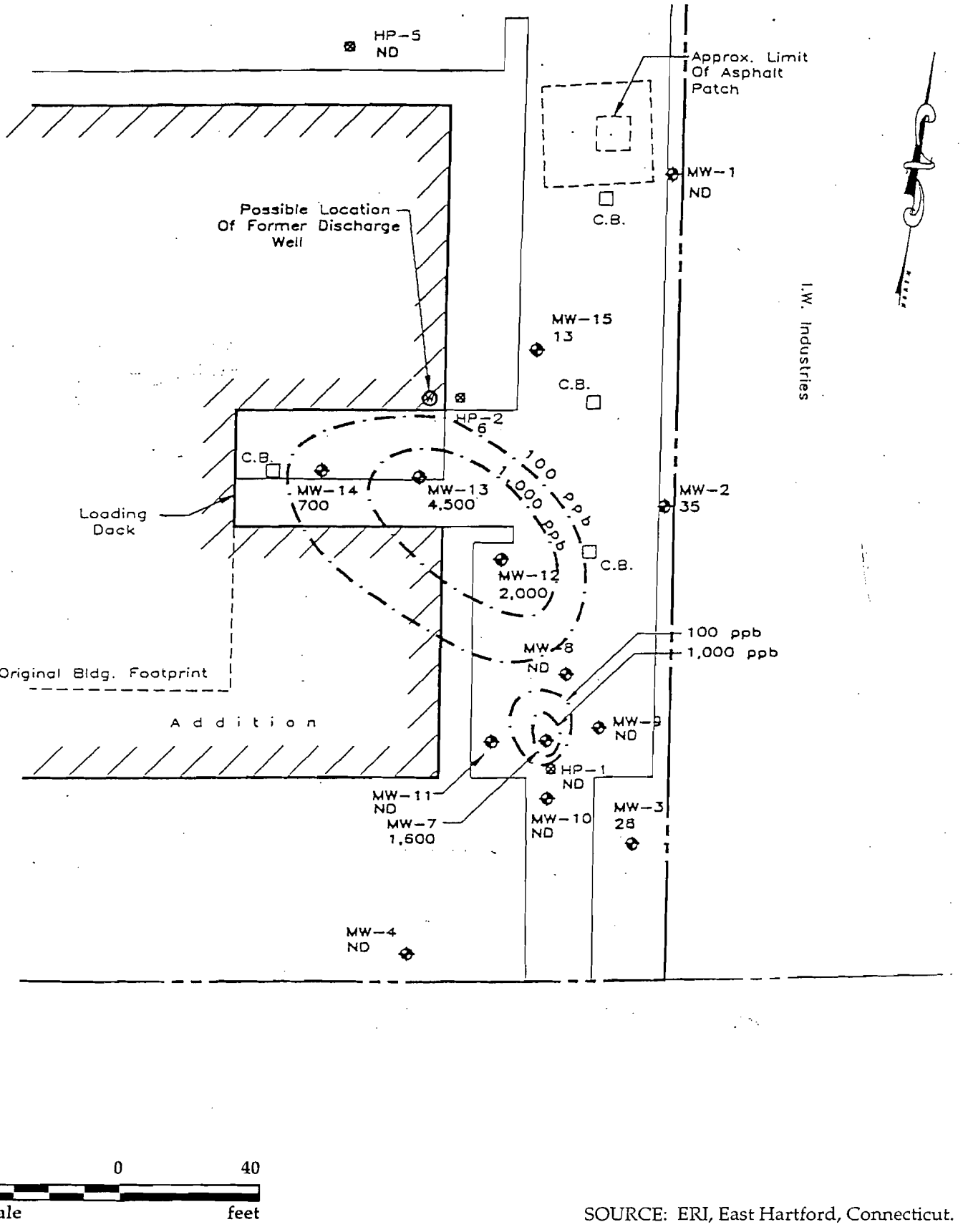


10278-20942/TSK4 *Issued: June 1997.*

SOURCE: ERI, East Hartford, Connecticut.

Figure 1-6
1996 1,1,1-TCA Concentrations In Groundwater
25 Melville Park Road, Melville, New York

CDM Camp Dresser & McKee



10278-20942/TSK4 *Issued: June 1997.*

SOURCE: ERI, East Hartford, Connecticut.

Figure 1-7
1996 cis 1,2-DCE Concentrations In Groundwater
25 Melville Park Road, Melville, New York

CDM Camp Dresser & McKee

1.5 Previous Off-Site Investigations

For the supplemental remedial investigation performed by CDM, no offsite investigations were performed. A previous offsite assessment performed in 1993 by Aciduria Environmental Services (AES) Corporation, indicated that the I.W. Industries property, located directly to the east of the subject site, is classified as a Class 2 inactive hazardous waste disposal site by the NYSDEC. The site assessment indicated that, based on its classification, the I.W. Industries site presents a significant threat to public health or the environment, and that remedial action is required.

The AES assessment indicated that a State Pollution Discharge Elimination System (SPDES) permit was prepared for and groundwater sampling was conducted on the I.W. Industries site. Contaminants detected in a former SPDES outfall above the maximum allowed levels included metals (copper, iron, aluminum, lead and zinc), 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, 1,2,4,5 tetramethylbenzene and xylenes. Contaminants detected in groundwater included cis-1,2-dichloroethene, lead, and benzene. According to the AES report, the SPDES discharge ceased in September 1984, coincident with the removal of two industrial waste pools (pumped and backfilled with clean fill), and the capping of the filtration system in the area. According to the report, a remedial investigation/feasibility study (RI/FS) had not been completed for the property.

In October 1996, Rizzo Associates conducted a survey of existing water supply and environmental monitoring wells in the Melville Park Road area. A total of sixteen wells were identified. Their locations appear in figure 1-8. Well depths range from 44 fbg to 630 fbg. Well screens intersect the Upper Glacial aquifer and the Magothy aquifer. A copy of the Rizzo Associates well summary table appears in Appendix C.

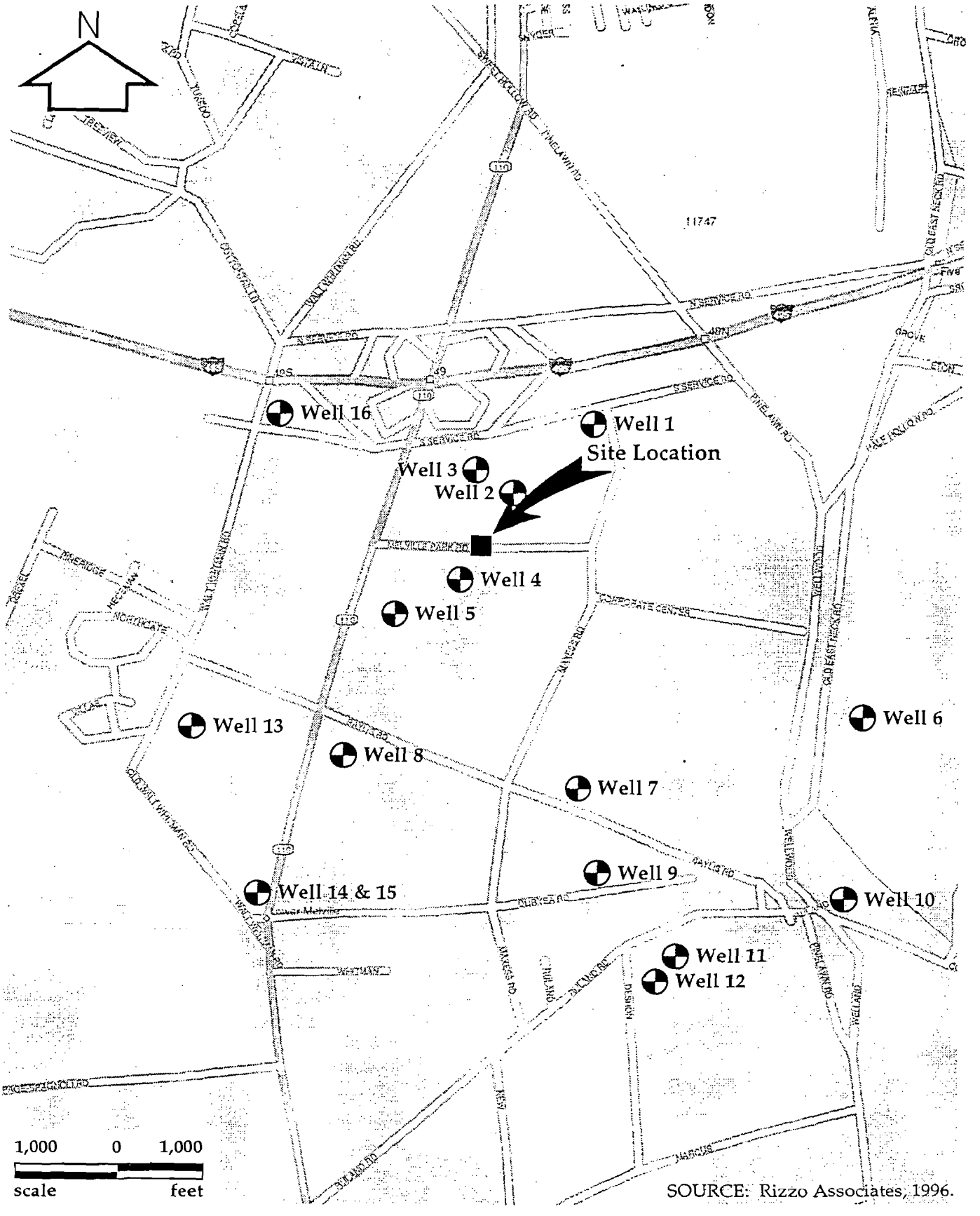
1.6 Public Records Review

On February 26, 1997, CDM conducted a review of the files housed at the Stony Brook offices of the New York State Department of Environmental Conservation. Summaries of selected documents from that file are contained in table 1-1. This file contained entries pertaining to a former manufacturing facility located at 25 Melville Park Road called New York Twist Drill.

On February 21, 1997, CDM conducted a review of the files housed at the Farmingville offices of the Suffolk County Department of Health Services. CDM was only partially successful in reviewing and reproducing documents from that file. SCDHS stipulated that select documents involving legal issues were "too sensitive" in nature to be reviewed. Despite the fact that access to this file was procured under the auspices of the Freedom of Information Act, SCDHS did not permit unsupervised review or photo reproduction of the file. Summaries of the documents that were obtained are presented in table 1-1. Copies of documents obtained from the NYSDEC and SCDHS files can be reviewed in Appendix B.

File documents and site plans from the former New York Twist Drill (NYTD) facility provide an adequate basis for the reconstruction of the manufacturing process (figure 1-9).

In general, the process of manufacturing twist drills consisted of modifying steel bars which ranged from 1/4-inch to 2-inches in diameter. These bars were cut to the desired length and shipped to the



SOURCE: Rizzo Associates, 1996.

Figure 1-8
Melville Area Monitoring And Water Supply Wells
25 Melville Park Road, Melville, New York

Document	Date	To	From	Contents
Correspondence	01/12/73	New York Twist Drill	T.E. Quinn, Division of Pure Waters	Correspondence informs recipient that Mr. N. Curry has been assigned to the Industrial Wastewater Treatment Facility at New York Twist Drill.
Correspondence	01/17/73	R.T. Burns, Bensin & Burns	N.A. Curry, Division of Pure Waters	With regard to a 02/03/72 engineering report requesting reinstatement of the NYTD Treatment System, this correspondence seeks clarification to several matters including volume of ferrocyanide in wastewater and concern about a sample with 2.0 mg/l barium.
Correspondence	03/14/73	P. Tobin, NYTD	T.E. Quinn, Division of Pure Waters	Correspondence approves that engineering report to reactivate the treatment plant but cites the need of NYTD to apply for a permit to operate the facility.
Memorandum	03/23/73	Mr. Machlin, NYSDEC	Mr. Bruce, NYSDEC	Informs recipient that NYTD was recently issued an approval to operate a treatment facility and advises recipient to establish a sampling and analysis program with NYTD.
Correspondence	10/15/73	C. Santurino, SCDEC	D. Hedtrich, NYTD	Informs recipient that since his 09/04/73 visit, NYTD pumped dry and cleaned several process tanks with contents disposed out-of-state. Letter also indicates that all PVC piping in the nitride waste water system was replaced with cast iron piping.
Industrial Waste Discharge Summary Report For 10/73	11/26/73	NYSDEC	D. Hedtrich, NYTD	Report acknowledges that several parameters exceeded acceptable limits but that corrective measures have been taken.
Industrial Waste Discharge Summary Report For 11/73	12/19/73	NYSDEC	D. Hedtrich, NYTD	Submittal of report apparently showing all parameters to be within acceptable limits.
Industrial Waste Discharge Summary Report For 12/73	01/10/74	NYSDEC	D. Hedtrich, NYTD	Report lists volume discharged, pH, barium, cyanide and total solids results for four (4) sampling events.

Table 1-1

Summary Of Selected Public Records Files *[*]*

New York Twist Drill, 25 Melville Park Road, Melville, New York

Document	Date	To	From	Contents
Industrial Waste Discharge Summary Report For 01/74	02/04/74	NYSDEC	D. Hedtrich, NYTD	Report lists volume discharged pH, barium, cyanide and total solids results for four (4) sampling events.
Industrial Waste Discharge Summary Report For 02/74	03/06/74	NYSDEC	D. Hedtrich, NYTD	Report lists volume discharged pH, barium, cyanide and total solids results for four (4) sampling events.
Industrial Waste Discharge Summary Report For 03/74	04/09/74	NYSDEC	D. Hedtrich, NYTD	Results for one (1) sampling event.
Industrial Waste Discharge Summary Report For 05/74	06/03/74	NYSDEC	D. Hedtrich, NYTD	Results for one (1) sampling event.
Industrial Waste Discharge Summary Report For 09/74	10/01/74	NYSDEC	D. Hedtrich, NYTD	Results for one (1) sampling event.
Industrial Waste Discharge Summary Report For 10/74	11/11/74	NYSDEC	D. Hedtrich, NYTD	Results for one (1) sampling event.
Notification Of Unsatisfactory Industrial Waste Sampling Report	04/28/75	NYSDEC	R. Gilbert, SCDEC	Report indicates that during a 03/31/75 sampling of the NYTD final leaching pool, barium levels (50 mg/L) were above the acceptable limits (2 mg/L). Report requests that conditions be corrected.

Document	Date	To	From	Contents
SPDES Permit	04/02/75	D. Mangogna, NYTD	A.R. Yerman, NYSDEC	Issuance of SPDES Permit No. NY0075575 to NYTD includes monitoring and sampling requirements.
Blueprint	05/19/75	----	----	Process diagram of NYTD process train by Bensin and Burns.
Correspondence	05/19/75	R.E. Strzepek, SCDEC	D. Mangogna, NYTD	Acknowledges difficulties in complying with barium discharge limits and proposes a modified treatment system including storage of barium in tanks No. 1 and 2; route contaminated water to leaching pool 4 and 5; and dispose of cyanide in settling tank No. 3 and then to leaching pool No. 6.
Correspondence	05/29/75	R.E. Strzepek, SCDEC	P. Barbato, NYSDEC	Letter seeks a decision from NYSDEC as to whether the proposed disposal system modifications at NYTD are acceptable.
Correspondence	06/13/75	R.E. Strzepek, SCDEC	P. Barbato, NYSDEC	Requests recipient to prepare a revised permit (SPDES) to reflect the proposed disposal system changes made by NYTD.
Correspondence	07/15/75	D. Mangogna, NYTD	D. Moran, NYSDEC	Transmittal letter forwarding SPDES industrial discharge monitoring report forms. Requests that all listed analytical parameters be monitored.
Correspondence	07/17/75	P. Barbato, NYSDEC	R.E. Strzepek, SCDEC	Transmittal of revised permit for NYTD including diagram of treatment process which included a previously unmentioned 7,000 gallon waste oil holding tank.
Industrial Waste Inspection Sheet	10/31/79	File	E. Gavernale, SCDEC	Comments contain references to an 8,000 gallon holding tank, nitrate process, cyanide salts, barium salts, waste holding tank and a note that a new building has been acquired across street.
Order Of Consent	12/28/79	D. Mangogna, NYTD	D. Middeton, NYSDEC	The Order of Consent (File No. 1-0375) imposes a fine against NYTD for violation of emissions in excess of permitted limits. Consent Order also defines other actions which must be taken by NYTD.
SCDHS Material Waste Control Report	08/28/80	File	F. Gavernale	Describes indoor chemical storage as having no problems. Notes outdoor storage room as having 10 full drums. Cites need to obtain building blue prints.

Document	Date	To	From	Contents
SCDHS Material Waste Control Report	09/02/80	File	F. Gavernale	No noted problems. Recommends that NYTD maintain chemical disposal records for inspection.
Memorandum	05/14/81	File	J. Glady, SCDHS	Facility inspection report describing deficiencies including inaccurate diagram of the SPDES outfall, cyanide treatment needs to be included in schematic, include general layout of the building, diagram to include floor drains, leaching pool received oil but was supposed to receive only non-contact cooling water, need to note storage tanks.
Correspondence	08/04/81	D. Mangagno, NYTD	A. Yerman, NYSDEC	Forwards copy of SPDES permit for NYTD.
Engineers Drawing	12/15/81	----	----	Drawing entitled "Existing Waste Water Distribution System" for NYTD. Drawing shows chemical processing facility and all chemical storage and holding tanks.
SCDHS Industrial Waste And Hazardous Materials Control Report	01/05/82	File	D. Obrig, SCDHS	Report was intended to verify data contained in the Engineering Report. The field report noted several discrepancies including number of structures, description of barium tanks and no cooling tower.
SCDHS Notice Of Violation	01/28/82	NYTD	J. Finkenberg, SCDHS	Report cites exceedances of TCE (74 ppb) from SPDES discharge point #001 (first pool) on 01/06/82. Notifies recipient that exceedance violates NYS ECL and SC Sanitary Code, Article 12. NYTD subject to fine.
Correspondence	02/22/82	A. Adamczyk, NYSDEC	O. Reneberg, SCDHS	Correspondence informs recipient of deficiencies in the required engineering report for NYTD. Suggest that the report include updated building and storage facility modifications, leaching facilities, and industrial waste disposal systems. Recommends new report specific to the site including suggestions for all discharges to be compatible to current effluent standards.
SCDHS Notice Of Violation	03/11/82	NYTD	J. Finkenberg, SCDHS	Report cites exceedances of TCE (72 ppb) from SPDES discharge point #002 (first pool) on 01/06/82. Notifies recipient that exceedance violates NYS ECL and SC Sanitary Code, Article 12. NYTD subject to fine.

Table 1-1

Summary Of Selected Public Records Files *[*]*

New York Twist Drill, 25 Melville Park Road, Melville, New York

Document	Date	To	From	Contents
Correspondence	03/16/82	D. Mangagno, NYTD	E. Blackwell, NYSDEC	Correspondence informs recipient that no updated engineering report has been received as required under the reviewed SPDES permit of 08/01/81. Letter also cites the 02/22/82 letter from SCDHS to NYSDEC which serves as the basis for the report revisions.
Engineer Drawing	06/22/82 (Rev. 03/12/84)	----	----	Engineers drawing of NYTD "Waste Water Treatment System".
Correspondence	09/16/82	A. Machlin, NYSDEC	J. Paetz, NYTD	Letter seeks NYSDEC approval/direction regarding the disposal of dry waste sludges from NYTD grinding machine cooling systems by private garbage cartage to county incinerators.
SCDHS Industrial Waste And Hazardous Materials Control Report	09/22/82	File	E. Jenglive (?), SCDHS	Report notes 50 empty drums behind building, 30 drums in building and cites violations of SC Sanitary Code, Article 12 - storage of toxic material without berms and storage without a roof.
SCDHS Industrial Waste And Hazardous Materials Control Report	10/04/82	File	B.C. Stark (?), SCDHS	Report notes a complaint of smells in the drum storage area behind a robotic jack (?). Notes fluid in bermed tank area, smells and an apparent leak to the storm drain.
Correspondence	10/05/82	J. Paetz, NYTD	P. Akras, SCDHS	Correspondence notifies recipient of Article 12 violations pertaining to drum storage of toxic or hazardous material. Correspondence includes a 09/20/82 SCDHS Industrial Waste And Hazardous Materials Control Report citing the Article 12 violations.
Engineering Report	02/83	SCDHS	J. Mahoney, Consulting Engineer	Report describes a history of NYTD operations between 1966 and 1982 and details improvements in the NYTD process and disposal operations during that period.

Document	Date	To	From	Contents
SCDHS Industrial Waste And Hazardous Materials Control Report	04/05/83	File	D. Obrig, SCDHS	Inventory of drums associated with NYTD operations.
Correspondence	05/11/83	D. Mangagno, NYTD	J. Harrington, NYSDEC	Letter acknowledges receipt of the Engineering Report and notes several comments to the report including lack of sampling data, discrepancy between specific pipe connections and outfall #003, and a rust stripping process.
Correspondence	04/16/84	J. Mahoney, Consulting Engineer	J. Harrington, NYSDEC	Correspondence notifies recipient that no response has yet been received to the 05/11/83 correspondence by NYSDEC.
SCDHS Industrial Waste And Hazardous Materials Control Report	05/31/84	File	D. Obrig, SCDHS	Report identifies scavenger companies used by NYTD to dispose of waste material.
SCDHS Inspection Request Form	06/21/84	File	D. Obrig, SCDHS	Describes results of the test of the barium tank indicating a loss of product (water) and recommends use of a high level alarm and the prevention of rain water into the tank if it is to be used in the future.
Correspondence	06/27/84	J. Paetz, NYTD	P. Akras, NYSDEC	Draft letter informs recipient of the loss of inventory during the barium tank test. Recommends that the tank be pumped and no longer utilized until all requirements for a double-walled containment area are met. Leak detection systems would also be required. Recommends testing the cyanide waste tank within 30 days.
Correspondence	09/04/84	NYSDEC	J. Paetz, NYTD	Transmittal of SPDES Discharge Monitoring Report for 03/01/84 through 08/31/84 and advises NYSDEC of NYTD's plans to close the facility in Melville by December 1984.
SCDHS Inspection Request Form	12/28/84	----	----	Report seeks verification that NYTD has suspended operations and describes NYTD's plans to relocate and/or dispose of process materials and wastes.

Document	*Date*	*To*	*From*	*Contents*
Correspondence	01/31/85	J. Paetz, NYTD	D. DeRidder, NYSDEC	Informs recipient that SPDES permit has been deleted based on the cessation of NYTD operations.
Correspondence	02/12/85	NYSDEC	J. Paetz, NYTD	Transmittal of SPDES Discharge Monitoring Report. Correspondence reiterates that NYTD has ceased operations and completed relocation on 12/15/84. Requests that NYSDEC remove NYTD from its directory of manufacturers.
SCDHS Industrial Waste And Hazardous Materials Control Report	06/07/85	File	D. Obrig, SCDHS	Report verifies the removal of former NYTD equipment, identifies new site owner, identifies waste manifests, identifies potential need to properly abandon UST's (waste oil, cyanide, barium) and dispose of drums.
Correspondence	06/24/85	Mr. Yudell, Delco Development	V. Frisina, SCDHS	Draft letter informs recipient that former NYTD tanks must either be reregistered or properly abandoned. Letter describes procedures to comply.
Correspondence	04/18/86	V. Frisina, SCDHS	J. Paetz, NYTD	Letter returns a tank replacement notice and informs recipient of the cessation of NYTD operations in 12/84. Indicates that NYTD maintains only an office and warehousing facility is in Ronkonoma. Requests removal of NYTD name from NYSDEC files.
Correspondence	08/19/92	K. Clunie, SCDHS	D. Galligan, API	Letter informs SCDHS that the management of the property at 25 Melville Park Road was assumed by API on 10/01/89. API became the owner on 01/17/91. Correspondence states that several tanks within the building were removed during construction as were several exterior to the building.
Article 12 Tank Registry	02/25/97	----	----	Tank inventory list shows eleven tanks formerly associated with NYTD. Nine of the eleven removed, two abandoned in place. Last action pertaining to tanks was completed on 09/30/91.

NOTE:
[*] This section provides a brief summary of the contents of each selected document. The reader is advised to thoroughly examine the complete document and/or file for complete evaluation, interpretation and intent of said document and/or file. It is further noted that Suffolk County Department of Health Services prohibited CDM access to several public records.

FILE SOURCE:
Suffolk County Department of Health Services, Farmingville, New York
New York State Department of Environmental Conservation, Stony Brook, New York

Table 1-1
Summary Of Selected Public Records Files *[*]*
New York Twist Drill, 25 Melville Park Road, Melville, New York

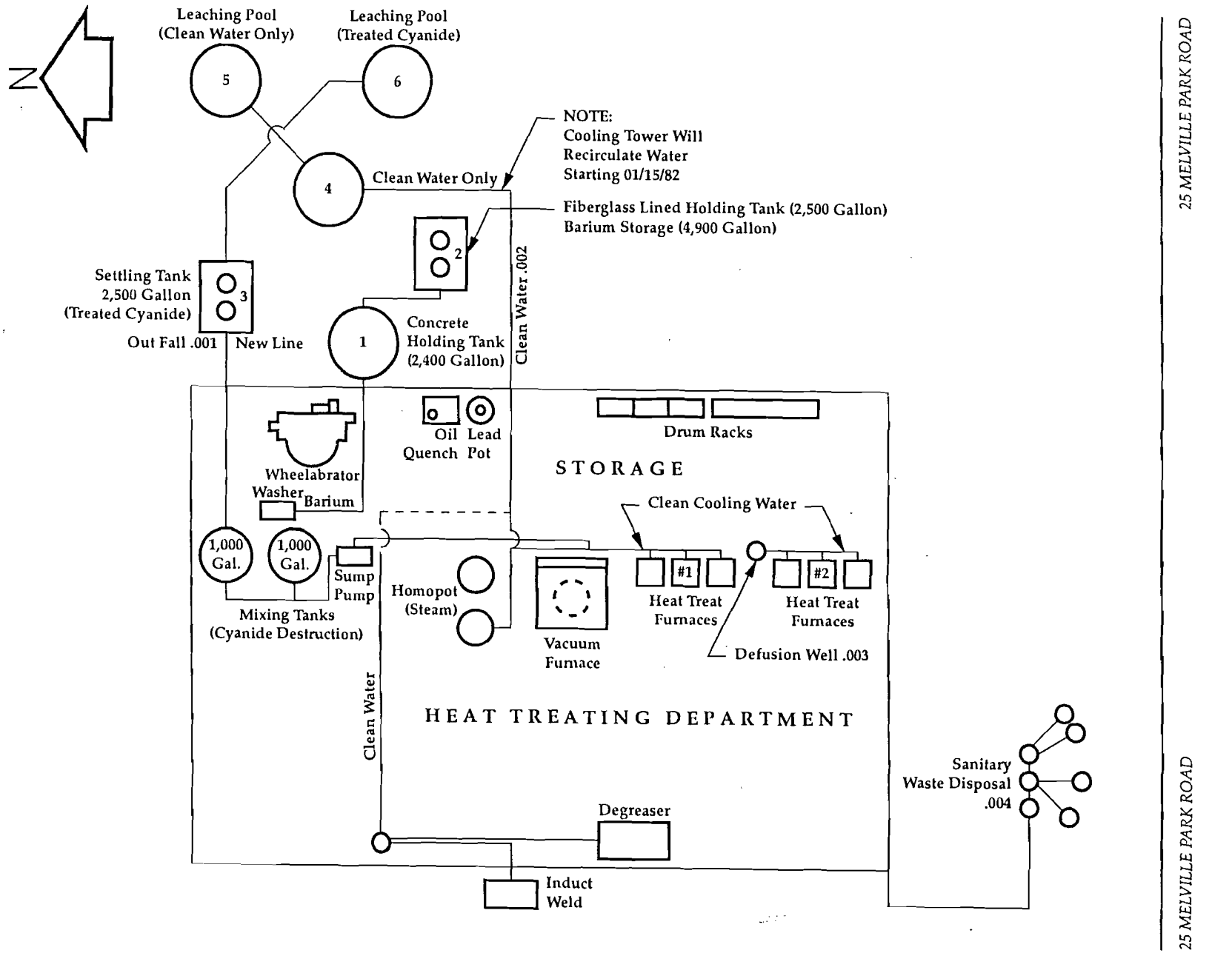


Figure 1-9
Schematic Of New York Twist Drill Manufacturing Process
25 Melville Park Road, Suffolk County, New York

Heat Treatment Department to be thermally tempered. In the Heat Treatment Department a degreasing agent was used on the bars before they were transported to the Grinding Department. Grinding occurred in two stages. The first, a rough grinding, the second, a fluted grinding. From the Grinding Department the material was transported to the Cleaning Department. Here the cutting edge of the drill was produced. The drill was then pointed, finished and subsequently, sent to the Packaging Department for shipment.

Based upon the information obtained in the NYSDEC/SCDHS files, a chronology of the site can be reconstructed. The chronology presented below is subject to interpretation. Founded by M. Hammer, NYTD operations began in Melville in 1966. Manufacturing at the site began the same year, following the issuance of a SPDES permit by the Suffolk County Department of Environmental Conservation (SCDEC). This permit was for the treatment of a cyanide bearing waste associated with wastewaters from nitride, alkaline wash and heat treatment wash tanks.

In 1975, a proposal to modify and simplify the process was forwarded to SCDEC by NYTD. This proposal presented a process design modification which isolated barium wastes in separate holding tanks for disposal by cartage companies. At the same time, plans were made to expand the Heat Treatment Department. During this expansion it is reported that a lean-to structure was constructed outside the building. This provided additional covered storage of drummed material that was not in current use.

Apparently the proposal for process modification did not receive attention (for unknown reasons) for several years. In 1982 the SCDHS described the proposal as inadequate and requested that NYTD produce a new engineering report. The new engineering report was produced by J.P. Mahoney Consulting Engineers. It describes various systems upgrades since the issuance of the original SPDES permit in 1966. All upgrades were reported to be improvements intended to reduce the volume of process and waste chemicals from the manufacturing process.

NYTD was sold to a British holding company, Laird Acquisition Company around 1980. Laird operated NYTD from the location of 25 Melville Park Road and a second location on Route 110 (Broadhollow Road) just west of 25 Melville Park Road. Laird later sold both facilities to Regal-Beloit of Beloit, Wisconsin.

The files of NYSDEC and SCDHS did not contain information on this site prior to 1973; approximately seven years after the initiation of operations at the New York Twist Drill facility. Several pieces of correspondence through the 1970's record instances of NYTD discharge violations above the allowable SPDES permit limits. These violations apparently led to the issuance by NYSDEC of an Order of Consent against NYTD in 1979.

Through the early 1980's SCDHS issued several notices of violation against NYTD for unacceptable TCE discharges at the SPDES discharge monitoring locations. These citations put NYTD on notice that exceedances violated various provisions of the New York State Environmental Conservation Law and Suffolk County Sanitary Code, Article 12.

Integrity testing of underground storage tanks (including the barium holding tank) also resulted in unacceptable performances and recommendations that tank use be discontinued until double wall

containment areas could be constructed. There is no documentation that these recommendations were implemented.

Shortly thereafter, NYTD informed NYSDEC of their plans to close the Melville facility and relocate operations. As a result of the cessation of NYTD operations in 1984, NYSDEC withdrew the existing SPDES permit in January 1985.

By June of 1985 Delco Development Corporation assumed responsibility for property management. In 1989, API Management Services Corporation became the Owner. The subject property is presently managed by Sterling Management and is under receivership to WHCS Real Estate L.P.

Based upon the review of the public record files archived at the Stony Brook office of the NYSDEC and the Hauppauge office of the SCDHS, the following conclusions can be drawn.

- NYTD operated a manufacturing facility at 25 Melville Park Road from 1968 through 1984.
- During NYTD tenure of site, state environmental regulatory agencies documented numerous instances of environmental irregularities. A record of environmental violations is clearly documented, culminating in a NYSDEC order on consent filed against NYTD.
- Several key contaminant species identified in site groundwater and soils can be traced directly to NYTD operations.
- All manufacturing operations ceased in 1984 and subsequent site use has been non-industrial in nature.

1.7 Employee Interviews

As part of the investigative tasks performed to better understand the operations of the former New York Twist Drill facility, CDM conducted interviews with several former NYTD employees. Names of these former employees were obtained from the public record files or were furnished by representatives of Ross Securities Consultants, a subcontractor to WHCS Real Estate L.P.

CDM attempted to contact six (6) former employees. In two of the six cases, interviewees were contacted. In two cases, interviews were unsuccessful and in two other cases the information received from other former employees suggested the potential interviewee was deceased.

In April 1997, CDM interviewed Mr. Ritchie Winkhart of West Hempstead, New York and Mr. Thomas Holgan of Babylon, New York. A summary of the information obtained appears below:

- Mr. Ritchie Winkhart
  Mr. Winkhart was employed by NYTD from 1977 through 1984. He was a Maintenance Department Supervisor responsible for the maintenance and repairs of the machinery and the grounds to some extent. With regard to the use of degreasers, Mr. Winkhart recalled that a material called "Trichlor 1,1,1" was used in the Heat Treatment process. He further believed it to be supplied by a company called Baron-Blakesley. The material may have also been called "Vapor Degreaser". Mr. Winkhart confirmed that drums of material were often put outside so

they would not interfere with operations inside the process area. He did not recall that there was a designated "drum storage area" or a lean-to area for drum storage. Mr. Winkhart confirmed that NYTD had a second office building on Route 110, but he did not believe that heat treatment or degreasing took place there. Mr. Winkhart was the source of information which suggested that two other potential interviewees have been deceased for a number of years.

- Mr. Thomas Holgan
  Mr. Holgan worked in the maintenance division with Mr. Winkhart. He also recalled that a degreaser was used in the heat treatment process which had a name of "chloroethene" . He believed it was supplied by Pritchards of West Babylon, NY. He also confirmed that New York Twist Drill operated a second building located at Route 110. The location is "diagonally opposite" the 25 Melville Park Road property. The company which occupied the site immediately after NYTD vacated was called "Lambda".

1.8 Baseline Risk Assessment and Air Sampling

A baseline human health risk assessment was performed by Environmental Remediations Inc. (ERI) to assess the potential risks associated with exposure to constituents in groundwater at the site and to provide useful information in determining remedial actions. The methods used to perform the assessment were provided by the NYSDEC and the US Environmental Protection Agency (Risk Assessment Guidance for Superfund or "RAGS"). The methodology included four steps: hazard identification; exposure assessment; toxicity evaluation; and risk characterization. For details and assumptions to the fate and transport modeling process, see the Preliminary Remedial Action Plan for 25 Melville Park Road, Environmental Remediations Inc., May 1996.

Potential exposure pathways chosen for inclusion in a risk assessment depend largely on the constituents, the affected media, contaminant location, and the potentially impacted receptors, or populations. Completed pathways identified for the Melville site include inhalation of volatilized compounds from groundwater into the indoor air by current office workers and future ingestion of drinking water from a hypothetical downgradient municipal well. First current and future exposure scenarios were modeled; then noncarcinogenic and carcinogenic risks were calculated. Cancer risk estimates were then compared to human health based risk levels that correspond to excess lifetime cancer risks set forth by the EPA and NYSDEC.

Potential current exposure stems from the possible volatilization of groundwater contaminants. These gaseous compounds could migrate through the soil and seep up through cracks in the building's foundation and into the indoor air. The screening model of the current exposure scenario indicated that inhalation exposure could potentially present a human risk for carcinogenic substances. Because the model utilized numerous conservative assumptions, indoor air sampling was undertaken to assess the accuracy of the inhalation model. In particular, the model assumed that low levels of PCE, TCE and 1,1-dichloroethene migrated into the indoor air space. As such, the indoor air sampling program was performed to evaluate whether levels of PCE, TCE and 1,1-dichloroethene could be detected in indoor air. The air samples were collected in evacuated summa canisters over a time period of 6 to 8 hours during normal work hours in the building. Three air samples from separate indoor locations were collected on three separate days. The air samples

were analyzed by the gas chromatography/mass spectrometry (GC/MS) method using cryo-focusing to concentrate potential organics. The detection limits ranged between 0.11 and 0.19 parts per billion (ppb).

No detected levels of 1,1-dichloroethene were indicated from the air sampling results. Concentrations of PCE and TCE were entered into the risk assessment model and yielded chemical-specific excess lifetime cancer risks of 1.10×10^{-7} and 1.48×10^{-7}, respectively. The summed cancer risk based on actual air levels was 2.58×10^{-7}, well within acceptable regulatory risk levels from carcinogenic substances. Noncancer risks calculated by ERI using a hazard quotient indicated that there was no potential for adverse health effects. The results were based on the modeled levels produced from the screening model.

The future scenario assessed the residential ingestion of drinking water from a hypothetical downgradient well. The concentrations of contaminants in the downgradient well were modeled using a two dimensional analytical contaminant transport program (Prince, 1994) employing conservative assumptions. ERI concluded that the results of the future scenario showed that the hazard quotient for noncancer risks was less than one, indicating that based on the modeled concentrations, there did not appear to be a potential for any adverse health effects from ingesting water from a hypothetical downgradient well. Cancer risks for the future scenario were significantly less that one in a million, the guidance level for carcinogenic substances set by the NYSDEC.

The future exposure scenario was based on plausible predicted uses of the site and site area. Land use in the immediate surrounding area is entirely light industrial and commercial. At the present time, it is unknown whether the South Huntington Water District will install an additional well in the immediate area. According to the Suffolk County Department of Health Services, the Melville area is considered a deep recharge area. As such, the modeled groundwater concentrations predict the potential flow of on-site contamination from a recharge area towards the receptor (the down-gradient water supply well). The future scenario risk assessment indicates that the site area does not present an unacceptable risk to downgradient receptors according to the ERI report.

Section 2
Field Investigations

2.1 Introduction

The scope of work proposed for this supplemental remedial investigation was developed specifically to address NYSDEC comments on previous investigations and upon successful completion, leave no gaps in the data which would preclude the accurate delineation of the on-site groundwater plume, the source area and would not further delay the development of a pilot test(s) for remedial action. NYSDEC correspondences which outlined the additional work requirements are dated September 25, 1996 and February 13, 1997. Both documents and related follow-up correspondence from NYSDEC appear in Appendix C.

In general, the NYSDEC work requirements were designed to:

- better understand site lithology;
- delineate the vertical extent of onsite groundwater contamination;
- increase confidence in the field data by imposing quality control/quality assurance measures;
- protect the health and safety of on-site investigators and the public;
- investigate contaminant source area(s) in more detail.

To meet these standards, CDM on behalf of WHCS Real Estate L.P. implemented the following procedures and protocols:

- To develop a better understanding of subsurface conditions, soil borings were advanced in the suspected contaminant source area(s). Soil samples were collected at predetermined intervals and field screened for volatile contaminants. Detailed descriptions of sample lithology were recorded.

- To determine the vertical extent of on-site contamination, representative groundwater sampling was conducted at fifteen foot intervals from the water table to a depth approaching 135 fbg using direct-push sampling technology. When field and laboratory analysis of the water samples indicated that the vertical extent of contamination was not identified fully, boreholes were advanced and hydropunch water samples collected until the plume was "zeroed out". This resulted in the installation of five (5) new wells as opposed to the three (3) wells which had originally been planned.

- To increase confidence in the sampling results, a contract laboratory program (CLP) facility was hired to conduct the analyses. In addition, all groundwater samples were analyzed for a full suite of Target Compound List (TCL) Volatile Organic Compounds, TCL Semi-Volatile Organic Compounds, TCL metals plus cyanide and Tentatively Identified Compounds (TIC's). Representatives of the NYSDEC collected split samples for analysis which were later determined to be in very close agreement with our samples.

Similarly, both new and existing wells were developed and purged to below 50 NTu's such that suspended particles would not interfere with sample analysis. When 50 NTu's could not be achieved, aliquots of sample were allowed to stand for 2-3 hours before a low turbidity sample could be decanted.

Additionally, all well water data was subject to strict data validation scrutiny.

- To protect public health, a site-specific Health and Safety Plan was developed. Included in it was a Vapor Emissions Monitoring and Response Plan.

- To determine the need to conduct additional drilling and sampling, a review of the analytical data was performed. For the metals, barium and cyanide, no exceedances of NYSDEC groundwater standards or criteria for either metal was identified. In addition, NYSDEC had established a site-specific groundwater action level of 700 ug/l for barium (per NYSDEC letter of 2/13/97). Current sampling showed no exceedance of this action level for barium. As a result, NYSDEC determined that additional drilling and sampling (recommendations included in previous NYSDEC correspondence) was not necessary.

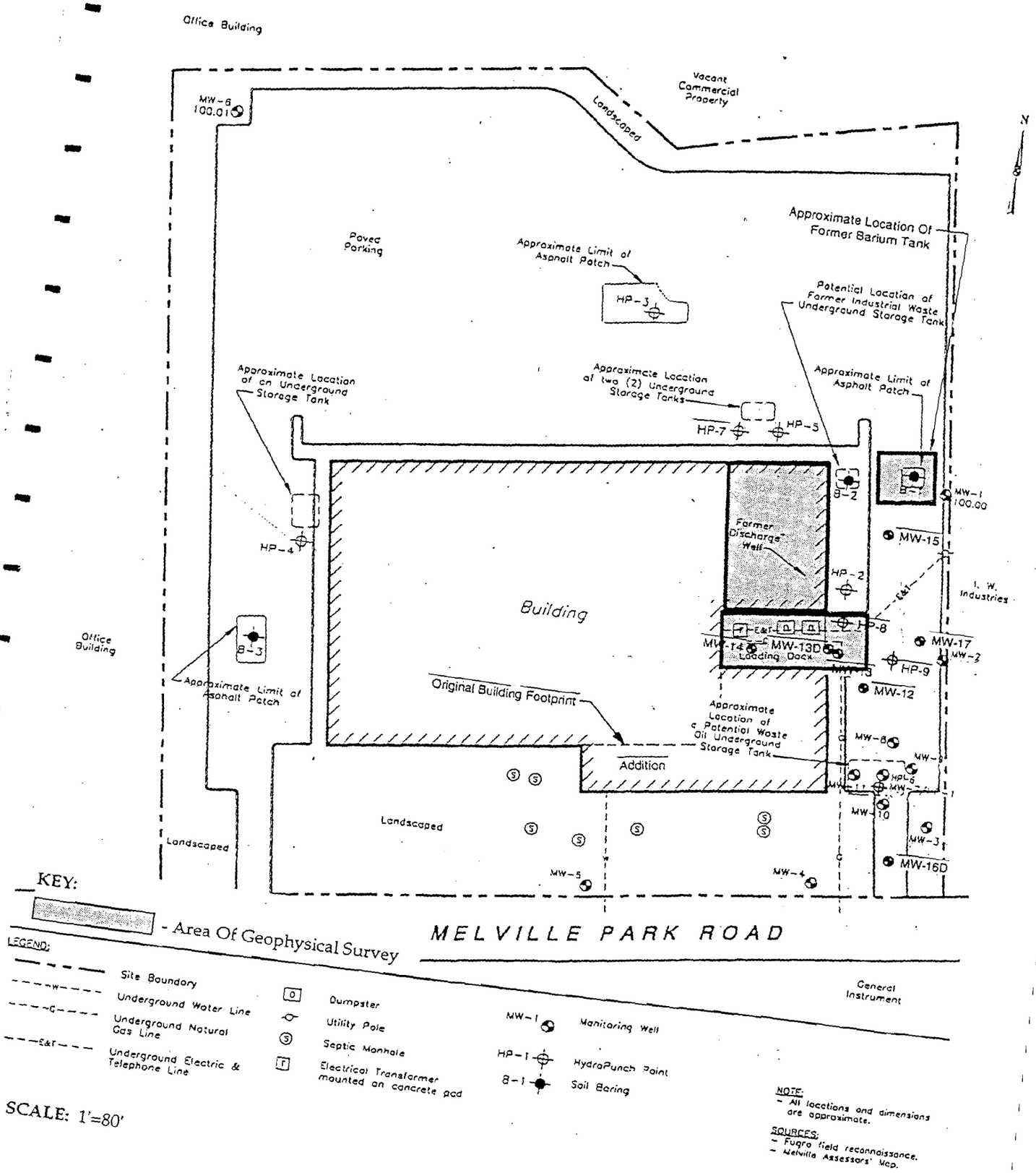
This supplement remedial investigation and voluntary cleanup do not address possible offsite contamination from the 25 Melville Park Road site, as agreed to by NYSDEC in their September 25, 1996 letter (Appendix C). As per this letter, NYSDEC established that "The goal of the voluntary cleanup will be to remediate the on-site soil and groundwater contamination. Groundwater contamination extends off-site. However, study and remediation of this off-site contamination will not be required under the voluntary cleanup agreement. The Department will attempt to have previous owners/operators fund the off-site investigation and remediation."

2.2 Geophysical Survey

On March 3, 1997, CDM performed a ground penetrating radar (GPR)/Magnetometer Survey at 25 Melville Park Road. A portion of the survey was conducted inside the building interior in the area formerly housing the New York Twist Drill process and manufacturing area. The survey was expanded exterior to the building to include the area containing the dumpster and the truck loading area which had previously been excluded from earlier geophysical studies. The area of investigation is presented in figure 2-1.

The survey was performed by NAEVA Geophysics of Tappan, New York. Survey grids were established in each area. Transects were set at five foot by five foot intervals. The GPR equipment was operated over each area twice. Different antennas were used on each successive run. The differentials were used to screen out interferences from the concrete slabs upon which the building foundation and the loading dock/dumpster area are constructed.

In addition to the areas noted, a representative of the New York State Department of Environmental Conservation also recommended that this survey area be expanded to included the asphalt patch in the eastern parking lot. This patch is believed to be the former location of the underground barium storage tank formerly used by NYTD.



CDM Camp Dresser & McKee

Location Of Interior And Exterior Geophysical Surveys
25 Melville Park Road, Suffolk County, New York

Figure 2-1

The results of the GPR/Magnetometer survey revealed that no underground structures were present beneath the expanded building footprint. In addition, no abandoned structures were located beneath the concrete pad housing the dumpster or the truck loading dock.

The only area where an anomaly was identified was the area of the former barium tank. The anomaly is not highly definitive, as one would expect to see if the structure was a metallic steel tank. The structure's signature suggests that the tank was concrete with approximate dimensions of ten (10) feet long by ten (10) feet wide.

2.3 Groundwater Level Measurements

On April 2, 1997 a round of groundwater level measurements were collected by CDM from eighteen (18) monitoring wells. On May 12, 1997 following completion of the installation of several new monitoring wells, CDM collected a second complete round of groundwater level measurements. Measurements were taken from the top of casing at each well, using a water level indicator with an accuracy of 0.01 ft. Depth to water level measurements are presented in Tables 2-1 and 2-2. Conceptual groundwater flow pathways calculated from these measurements confirm a south to southeasterly flow field (figure 2-2).

2.4 Environmental Sample Screening

The objectives of the environmental sample screenings were to:

- determine the presence of silt and/or clay layers in the vadose zone and the saturated zone;
- develop a vertical profile of contaminant distribution in selected areas;
- determine the vertical extent of contamination in preparation of pilot studies, and
- define well screen intervals for the proposed monitoring wells.

Both soil and groundwater samples were collected for screening purposes. Samples were delivered to CDM's laboratory subcontractor H2M Labs of Melville, New York, for volatile organic compound (VOC) and tentatively identified compound (TIC) analyses.

2.4.1 Soil Sample Screening

Utilizing direct-push sampling technologies, Environmental Probing Investigations (EPI) were instructed by CDM to collect vadose zone samples at ten (10) foot intervals. Samples from each of four soil borings (HGB-1, HGB-2, HGB-3 and HGB-5) were field screened for head space analysis using an Organic Vapor Monitor (OVM). Samples with the highest head space readings were sent to the laboratory for VOC/TIC analysis. At a fifth soil boring HGB-4, one soil sample was collected at a depth of 10 - 12 feet below grade as a means of confirming a previous sample analysis collected in an earlier investigation. As a result of the head space screenings, two (2) soil samples from HGB-1 and two from HGB-3 were delivered for analysis; one (1) soil sample from HGB-2, HGB-5, and HGB-4 were sent for analysis. Table 2-3 provides boring logs developed from the samples collected during the screening task.

Table 2-1

Groundwater Purging Specifications

25 Melville Park Road

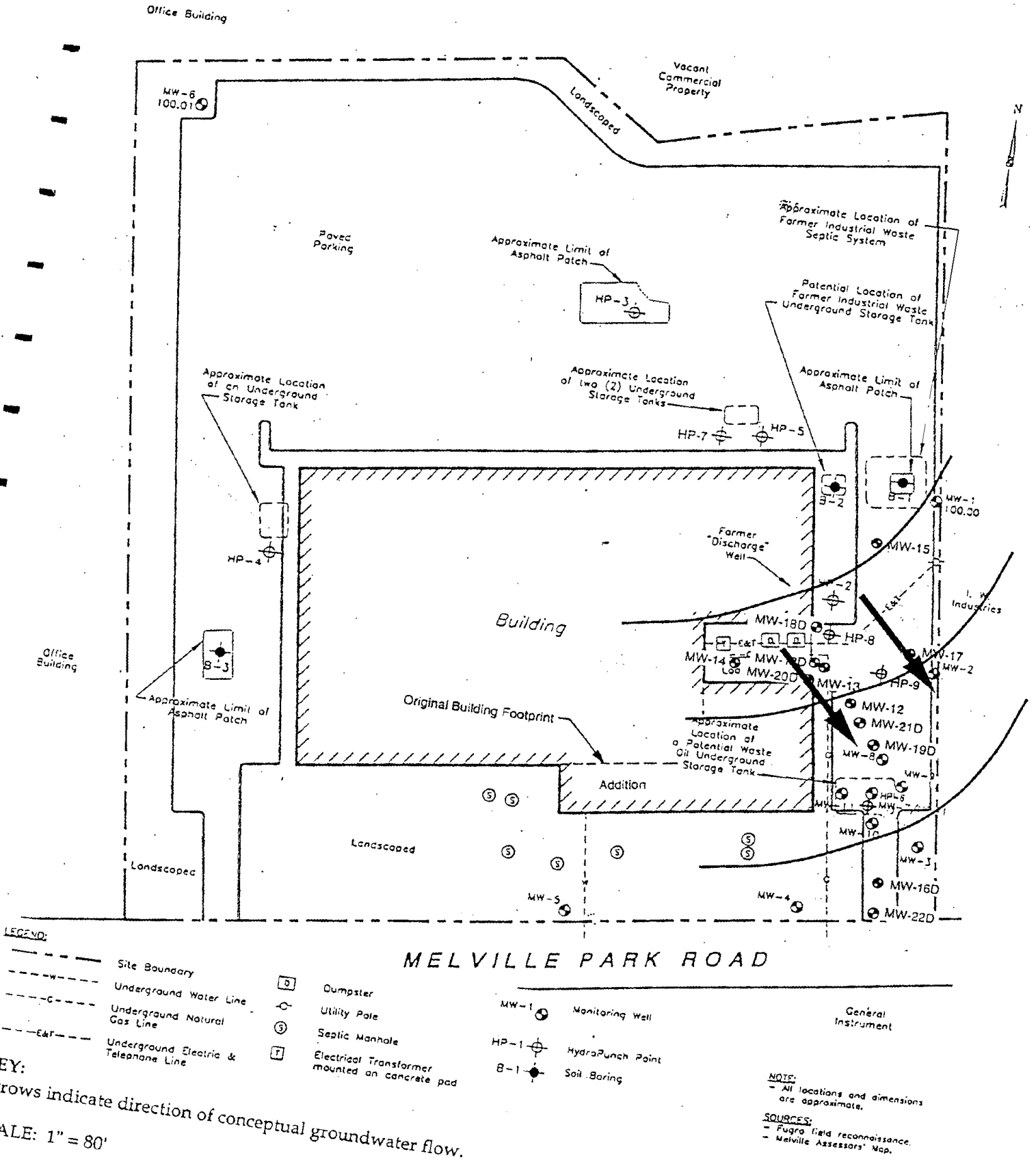
Melville, Suffolk County, NY

Well ID	Well Diameter (inches)	Total Depth (Feet)*	Depth to Water (Feet)*	Standing Water (Feet)	Casing Volume (Gallons)	3 Well Volumes (Gallons)	Amount Purged (Gallons)
MW-1	4	58.20	49.35	8.85	5.8	17.3	NA
MW-2	4	52.34	48.13	4.21	2.7	8.1	55
MW-3	4	57.83	48.46	9.37	6.1	18.3	20
MW-4	4	58.08	48.80	9.28	6.1	18.3	75
MW-5	4	58.15	49.27	8.81	5.7	17.2	NA
MW-6	4	58.20	49.35	8.85	5.8	17.3	NA
MW-7	2	57.14	48.23	8.91	1.5	4.5	70
MW-8	2	57.28	47.68	9.60	1.6	4.8	40
MW-9	2	58.96	47.92	11.04	1.8	5.4	30
MW-10	2	58.36	48.44	9.92	1.6	4.8	50
MW-11	2	57.90	49.06	8.84	1.4	4.2	50
MW-12	2	53.70	47.99	5.71	0.9	2.7	95
MW-13	2	57.72	48.00	9.72	1.6	4.8	85
MW-13D	2	89.53	48.14	41.39	6.7	20.1	60
MW-14	2	56.40	46.70	9.70	1.6	4.8	65
MW-15	2	58.00	47.36	10.64	1.7	5.1	80
MW-16D	2	88.58	48.57	40.01	6.5	19.5	70
MW-17	2	59.64	47.37	12.27	2.0	6.0	95
Notes:							
* Depths taken from top of casing (TOC) on April 2, 1997							

Table 2-2
Water Level Elevations
Recorded May 12, 1997
25 Melville Park Road
Melville, Suffolk County, NY

MW #	DTW	ELEVATION TOC	ELEVATION WATER
1	49.09	119.15	70.06
2	47.72	117.66	69.94
3	48.29	118.06	69.77
4	48.25	117.98	69.73
5	48.7	118.27	69.57
6	48.83	119.24	70.41
7	47.69	117.53	69.84
8	47.16	117.04	69.88
9	47.40	117.22	69.82
10	47.90	117.68	69.78
11	48.50	118.29	69.79
12	47.48	117.42	69.94
13	47.50	117.46	69.96
13D	47.60	117.48	69.88
14	46.18	116.13	69.95
15	46.90	116.85	69.95
16D	48.01	117.49	69.48
17	46.92	116.85	69.93
18D	48.23	118.10	69.87
19D	48.30	117.31	69.01
20D	47.38	117.68	70.30
21D	47.42	117.3	69.09
22D	48.68	117.69	69.01

DTW: Depth To Water
TOC: Top Of Casing
Elevations are in feet above mean sea level.



KEY:
Arrows indicate direction of conceptual groundwater flow.

SCALE: 1" = 80'

10278-20942.TSK4

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Figure 2-2
Groundwater Flow Direction, May 1997
25 Melville Park Road, Melville, N

Table 2-3

Log Of Soil Boring HGB-1

25 Melville Park Road

Melville, Suffolk County, NY

Date Drilled	4/1/97 - 4/3/97			**Drilling Co.**	EPI
Total Depth	132 Feet			**Method Used**	Hurricane Dual Geoprobe
Inspector	Frank Robinson			**Organic Vapor Instrument**	OVM 580B
				Water Table Depth	50 Feet
Depth (Feet)	**Sample ID**	**Sample Interval**	**Organic Vapor (PPM)**	**Sample Description**	**Strata Change**
10	1	10 to 12	0	Tan fine to medium sand	SW
				no fines, some gravel	
20	2	20 to 22	1.3	same as above, more gravel	SW
30	3	30 to 32	25	same as above	SW
40	4	40 to 42	23	same as above	SW
50	5	50 to 52	3	same as above	SW
				saturated at 50	
60	6	60 to 62	0	same as above to tan silty clay	CL
				(CL) to dry reddish brown	
				clay back to tan fine to medium	
				sand, no fines, no gravel	
	7	64 to 66	0	reddish-brown medium sand	SW
				some gravel, no fines	
70	8	70 to 72	0	brownish white fine to medium	SW
				sand, no fines, no gravels	
				(beach sand)	
80	9	83 to 85	2	same as above	SW
90	10	95 to 97	0	same as above	SW
100	11	100 to 102	0	same as above, but more	SW
				fine grained sand	
	12	105 to 107	0	same as above but color	SW
				changed to tan	
110	13	110 to 112	0	same as above	SW
	14	115 to 117	0	same as above	SW
120	15	125 to 127	0	same as above	SW
130	16	130 to 132	0	same as above	SW

Table 2-3

Log Of Soil Boring HGB-2

25 Melville Park Road

Melville, Suffolk County, NY

Date Drilled	4/7/97			**Drilling Co.**	EPI
Total Depth	47 Feet			**Method Used**	Hurricane Dual Geoprobe
Inspector	Frank Robinson			**Organic Vapor Instrument**	OVM 580B
				Water Table Depth	50 Feet
Depth (Feet)	**Sample ID**	**Sample Interval**	**Organic Vapor (PPM)**	**Sample Description**	**Strata Change**
0	1	5 to 7	0	Brownish/white fine to	SW
				medium sand with much	
				gravel, no fines	
10	2	15 to 17	0	same as above, color	SW
				more brownish. Several large	
				pieces of gravel	
20	3	25 to 27	0	same as above, but	SW
				no gravel	
30	4	35 to 37	0	same as above, some gravel	SW
40	5	45 to 47	0	Damp, brown medium sand,	
				no fines, much gravel	

Table 2-3

Log Of Soil Boring HGB-3

25 Melville Park Road

Melville, Suffolk County, NY

Date Drilled	4/7/97			**Drilling Co.**	EPI
Total Depth	52 Feet			**Method Used**	Hurricane Dual Geoprobe
Inspector	Frank Robinson			**Organic Vapor Instrument**	OVM 580B
				Water Table Depth	50 Feet
Depth (Feet)	**Sample ID**	**Sample Interval**	**Organic Vapor (PPM)**	**Sample Description**	**Strata Change**
10	1		2	Brown fine to medium sand with much gravel	SW
20	2	20 to 22	0	same as above	SW
30	3	30 to 32	0	same as above	SW
40	4	40 to 42	0	same as above	SW
50	5	50 to 52	0	saturated at 50 feet	SW

Table 2-3

Log Of Soil Boring HGB-4

25 Melville Park Road

Melville, Suffolk County, NY

Date Drilled	4/2/97			**Drilling Co.**	EPI
Total Depth	12 Feet			**Method Used**	Hurricane Dual Geoprobe
Inspector	Frank Robinson			**Organic Vapor Instrument**	OVM 580B
				Water Table Depth	50 Feet
Depth (Feet)	**Sample ID**	**Sample Interval**	**rganic Vapo (PPM)**	**Sample Description**	**Strata Change**
10	1		0.8	tan fine to medium sand	SW
				with much gravel, no fines	

Table 2-3

Log Of Soil Boring HGB-5

25 Melville Park Road

Melville, Suffolk County, NY

Date Drilled	4/7/97			**Drilling Co.**	EPI
Total Depth	52 Feet			**Method Used**	Hurricane Dual Geoprobe
Inspector	Frank Robinson			**Organic Vapor Instrument**	OVM 580B
				Water Table Depth	50 Feet
Depth (Feet)	**Sample ID**	**Sample Interval**	**Organic Vapor (PPM)**	**Sample Description**	**Strata Change**
55	1	56 to 59	0	Saturated, tan fine to	SW
				medium sand, no gravel	
				no fines, small pieces	
				of reddish brown clay	
60	2	59 to 62	0	same as above to	SM
				reddish-brown sandy	
				silt (SM)	
65	3	62 to 65	0	reddish brown silt (6 in)	SW
				to reddish-brown fine	
				to medium sand, no fines	
				to brownish-white fine to	
				medium sand, no fines	
				some gravels	

2.4.2 Groundwater Sample Screening

Two rounds of groundwater screening were conducted. The first round occurred between April 1 and April 8, 1997; the second between April 18 and May 6, 1997. A Hurricane Geoprobe Borehole (HGB) rig was used to collect most of the screening samples. The HGB rig had a depth limitation of approximately 130 feet below grade. Groundwater screening samples collected at greater depth intervals were obtained through the use of a standard drilling rig and hydropunch sampling device. Table 2-3 identifies each sample depth and the method used to collect said sample.

During the first round of sample collection, the Hurricane Geoprobe Borehole rig was used exclusively to advance five (5) HGB borings. At four of the five soil boring locations groundwater samples were collected for screening. The first three (3) borings (HGB-1, HGB-2, and HGB-3) were advanced in the suspected source area; the fourth HGB-4 was only advanced to a depth of 10-12 feet below grade to collect a confirmatory soil sample which would be used to test the validity of a suspect sample collected by previous investigators. A fifth HGB boring and fourth groundwater sample was collected at HGB-5 located downgradient and adjacent to monitoring well MW-8. A NYSDEC representative approved all boring locations. Groundwater screening sample intervals were predetermined. Samples were collected at approximately the water table, 64, 72, 90, 105, 120 and 135 feet below grade. Slight variations to these intervals resulted from the site specific conditions or decisions rendered in consultation with the on site representative of the NYSDEC. In addition, it is noted that the samples corresponding with the water table were actually collected four (4) feet below the water table, as agreed to with the NYSDEC.

The groundwater sampling procedure was developed so that discrete aquifer intervals could be tested. Groundwater was sampled by driving the drill rod to the predetermined depth, installing a temporary small diameter well screen and riser casing inside the drill rods. The drill rod was then withdrawn approximately one to two feet allowing direct communication of the aquifer with the well screen . A sample tube was placed down to the well screen and a foot valve was used to develop and then extract a sample of groundwater from the appropriate interval. All downhole direct push sampling equipment was decontaminated between samples. Table 2-4 provides details of the depths the groundwater and soil samples were collected. Samples were delivered to a NYSDEC certified laboratory for 24-hour turnaround analysis.

Groundwater screening results were used to install monitoring wells at predetermined depths. Soil boring HGB-1 was converted to monitoring well MW-18D. A groundwater sampling screening result of less than 100 ppb total VOC's and a depth limitation on the HGB direct push sampling equipment of 132 feet provided the impetus to install the well screen at a depth of 133-143 feet below grade with the conventional drilling rig. Similarly, a groundwater screening sample collected by hydropunch at soil boring location HGB-5 from a depth of 162 feet provided the rationale to install that screen (MW-19D) at 160-170 feet below grade. Soil borings HGB-2, 3 and 4 were backfilled and were not converted to groundwater monitoring wells.

During the second round of groundwater screening sample collection (HGB-6, HGB-7 and HGB-8), the HGB direct pushing was again used to collect all samples 130 feet or less below grade. A conventional drilling with hydropunch sampler was utilized to collect samples at depths greater than 130 feet.

Table 2-4
Screen Sample Intervals
25 Melville Park Road
Melville, Suffolk County, NY

Date	Media	Soil Boring Location	Depth (Feet)	Purge Volume (Gallons)	Analysis	Comments
1-Apr	Water	HGB-1	54-56	1	VOCs + TICs	
2-Apr	Water		62-64	1.5	VOCs + TICs	
2-Apr	Water		70-72	2	VOCs + TICs	
2-Apr	Water		88-90	1.5	VOCs + TICs	
2-Apr	Water		98-100	1.5	VOCs + TICs	
2-Apr	Water		113-115	1.5	VOCs + TICs	
3-Apr	Water		128-130	3	VOCs + TICs	Total Depth 130 feet
17-Apr	Water		142-143 (1)			
7-Apr	Water	HGB-2	56-58	N/A	VOCs + TICs	Total Depth 58 feet
7-Apr	Water	HGB-3	55-57	N/A	VOCs + TICs	Total Depth 57 feet
2-Apr	Soil	HGB-4	10 to 12	N/A	VOA,BNA,metals,and cyanide	Soil Sample Only Total Depth 12 feet
8-Apr	Water	HGB-5	62-64	1	VOCs + TICs	
8-Apr	Water		70-72	1.5	VOCs + TICs	
8-Apr	Water		88-90	1.5	VOCs + TICs	
8-Apr	Water		103-105	1.5	VOCs + TICs	
8-Apr	Water		118-120	2	VOCs + TICs	
8-Apr	Water		130-132	3	VOCs + TICs	Total Depth 132 feet
18-Apr	Water		160-161 (1)	10	VOCs + TICs	
21-Apr	Water	HGB-6	174-175 (1)	10	VOCs + TICs	Total Depth 175 feet
30-Apr	Water	HGB-7	55-56	3	VOCs + TICs	
30-Apr	Water		62-64	3	VOCs + TICs	
30-Apr	Water		70-72	3	VOCs + TICs	
30-Apr	Water		90-92	3	VOCs + TICs	
30-Apr	Water		119-120	3	VOCs + TICs	
30-Apr	Water		135	10	VOCs + TICs	Total Depth 135 feet
1-May	Water	HGB-8	55-56	3	VOCs + TICs	
1-May	Water		62-64	3	VOCs + TICs	
1-May	Water		70-72	3	VOCs + TICs	
1-May	Water		90-97	3	VOCs + TICs	
1-May	Water		119-120	3	VOCs + TICs	
1-May	Water		135	3	VOCs + TICs	
6-May	Water		150 (1)	10	VOCs + TICs	Total Depth 150 feet

Notes:
1. Hydropunch
VOC - Volatile Organic Compounds
TIC - Tentaviley Identified Compounds
BNA - Base Neutral Extractibles
HGB-1 - converted to groundwater monitoring well MW-18D
HGB-5 - converted to groundwater monitoring well MW-19D
HGB-6 - converted to groundwater monitoring well MW-20D
HGB-7 - converted to groundwater monitoring well MW-21D
HGB-8 - converted to groundwater monitoring well MW-22D

The soil boring for monitoring well MW-20D showed a total volatile organic concentration of non-detect in groundwater at a depth of 172 feet below grade. The well screen for this well was set from 175-185 feet below grade.

Each of the three (3) new groundwater monitoring wells (MW-18D, 19D and 20D) were developed in accordance with NYSDEC protocols. These wells were allowed to equilibrate for a minimum fourteen (14) day period and were then purged and sampled on May 22, 1997. Sampling results are discussed in Section 3.

2.4.3 Sample Screening for Treatment Well Installation

At the request of CDM's client, two additional treatment wells were also installed. Direct push technologies were used to collect groundwater screening samples from the water table to the depth limit of the contaminant plume in boreholes, HGB-7 and HGB-8. That limit was proposed as 100 ppb total volatile organic compounds (TVOC's). The objective of this task was to verify the vertical extent of the contaminant plume along its axis. Subsequently, two (2) new monitoring wells with well screen lengths corresponding to the thickness of the contaminated portion of the aquifer were installed. One well screen was 110 feet long (MW-21D; converted from HGB-7) and the other 90 feet long (MW-22D; converted from HGB-8). These wells are to be used as oxidant injection points during the implementation of a pilot study for remedial action. Locations of MW-21D and MW-22D are shown in figure 2-2.

2.5 Groundwater Sampling

CDM completed the sampling of fifteen (15) monitoring wells on April 3 and 4, 1997, after purging a minimum of three well volumes from each well using a stainless steel submersible pump. Purged water was placed into 55 gallon drums and stored on site awaiting disposal. In accordance with the Work Plan and agreement with NYSDEC, groundwater sampling did not take place until turbidity measurements of the developed/purged monitoring wells were less than 50 NTU's. Only three (3) wells did not meet this criteria. For those wells (identified in table 2-5), a one gallon container was filled with well water and allowed to rest idle for three hours. Aliquots of sample were subsequently decanted and the sample delivered to the laboratory. Decanting was not performed on the volume of sample used for volatile organic contaminant content. The purpose of the decanting was to allow suspended solids to settle out of the water column to avoid interference with the metals analysis.

Fifteen (15) groundwater samples, a blind duplicate from monitoring well MW-17, and a matrix spike/duplicate (MS/MSD) from monitoring well MW-3, were collected for laboratory analysis. Additionally, one trip blank was provided by the contract laboratory along with the sample containers. All groundwater samples were analyzed by the laboratory for volatile organic compounds (VOCs), semivolatile organics, and TCL metals in accordance with NYSDEC Analytical Service Protocols (ASP), December 1991. Analysis of trip blanks was limited to VOC's.

All groundwater sampling equipment was decontaminated using an Alconox detergent/water solution with potable rinse before the sampling of each monitoring well. All plastic tubing used in the collection of groundwater samples was discarded after a single use to avoid cross-contamination.

Table 2-5

Groundwater Purging Water Quality Data

25 Melville Park Road

Melville, Suffolk County, NY

Date	Well Id	pH	Conductivity ms/cm	Turbidity NTu's	Dissolved Oxygen mg/L	Temperature (Celcius)
4-Apr	MW-2	6.01	0.12	43	1.20	17.0
3-Apr	MW-3	5.83	0.14	23	6.23	16.6
3-Apr	MW-4	6.11	0.28	40	0.86	15.4
3-Apr	MW-7	6.05	0.21	44	8.01	16.0
3-Apr	MW-8	5.71	0.23	16	6.68	16.4
3-Apr	MW-9	5.69	0.13	28	5.69	16.1
3-Apr	MW-10	6.06	0.18	861*	5.62	16.4
3-Apr	MW-11	6.16	0.18	356*	3.73	15.8
3-Apr	MW-12	6.02	0.31	47	3.44	15.8
4-Apr	MW-13	6.23	0.21	49	8.22	16.6
4-Apr	MW-13D	5.95	0.16	44	1.60	15.4
4-Apr	MW-14	6.10	0.24	37	1.27	16.3
4-Apr	MW-15	5.65	0.24	48	1.27	15.4
3-Apr	MW-16D	5.86	0.21	277*	8.11	15.4
4-Apr	MW-17	6.03	0.14	92	5.48	17.1
22-May	MW-18D	-	-	41	-	-
22-May	MW-19D	-	-	40	-	-
22-May	MW-20D	-	-	47	-	-
	Notes:					
	* Due to high Turbidity, metals sample was decanted for analysis					
	** All Samples submitted for VOA,BNA,Metals, and Cyanide					

Following the installation and development of newly installed monitoring wells MW-18D, MW-19D and MW-20D, these wells were purged and sampled on May 22, 1997. All procedures used to sample the original wells were repeated during this second phase of well sampling. It is noted that NTU values for the three new wells were below 50 NTu's so it was not necessary to decant an aliquot for metals analysis. Also like the first groundwater sampling round, quality assurance and quality control samples were collected and analyzed in accordance with CLP protocols.

Section 3 provides a discussion of analytical results for the groundwater samples.

2.6 Inspection of Former Supply Well

Previous reports on the 25 Melville Park Road property indicated the presence of a former water supply well located on the interior north side of the building. That well was reportedly used to circulate non-contact cooling water for the manufacturing process. Pursuant to NYSDEC requirements outlined in a September 25, 1996 correspondence, CDM inspected the well during the present investigation. Inspections indicate the well casing to be filled with miscellaneous debris beginning approximately four to five feet below grade. It could not be determined how much of the well casing was filled with debris nor whether the well had been appropriately sealed prior to blockage of the casing.

2.7 Status of Related Off-Site Investigations

CDM made several inquiries to the New York State Department of Environmental Conservation regarding the status of off-site investigations related to the subject property. In each instance NYSDEC indicated that to their knowledge no off-site investigations were in progress.

2.8 Investigation - Derived Wastes

Implementation of the investigative work plan resulted in the generation of waste material, namely drill cuttings, drill fluid, well development water and well purge water. All investigation-derived waste (IDW) material was containerized in steel 55-gallon drums and housed inside two 40 yard steel containers located on-site. Waste material remained containerized until it could be thoroughly characterized and disposed.

Following analysis of the IDW, it was determined that disposal could proceed to a facility licensed to dispose of non-hazardous substances. IDW removal was conducted in two phases; the first conducted during the week of May 7, 1977 and the second conducted the week of May 27, 1997. Material was collected in vacuum trucks by Allstate Power-Vac of Linden, NJ, a licensed waste hauler in 41 states. Disposal of all non-hazardous material was to the Republic Environmental Recycling Facility in Clayton, NJ. Bill of lading, volume of materials removed and invoice information is provided in Appendix D.

Section 3
Nature and Extent of Contamination

The nature and extent of contamination at 25 Melville Park Road was suggested but not well defined by previous studies. Based upon these studies, the principal contaminants were identified as tetrachloroethene (PCE) 1,1,1-trichloroethane (1,1,1-TCA) and PCE degradation products, including trichloroethene (TCE), 1,1-dichloroethane (1,1-DCA), and 1,2-dichloroethene (1,2-DCE). The soil and groundwater contamination by these volatile organic compounds (VOCs) was found to be concentrated around previous sampling points HP-8 and HP-9, at which a free non-aqueous phase liquid (NAPL) was found to be present. In addition to VOCs, barium was identified as a potential soil contaminant near the asphalt patch north of MW-17.

As discussed in Section 1, the purpose of the supplemental field investigation program performed by CDM was to fill in the data gaps, namely the following:

- to better define the lateral and vertical extent of source area soil contamination, including the presence of NAPL, in the unsaturated zone in the vicinity of HP-8 and 9;
- to better define the vertical extent of groundwater contamination;
- to determine whether barium exceeded NYSDEC groundwater quality criteria and if further characterization of a potential barium contaminant source was justified.

This section evaluates the data collected under the current investigation. In some cases, this data is compared to relevant historical sampling data.

3.1 Soil Sampling Results

The analytical results for soil boring sampling performed during the supplemental field investigation are presented in Table 3-1. The table presents a summary for the compounds detected in the site soil and groundwater samples. The full analytical results can be found in Appendices C and D. Available NYSDEC soil cleanup criteria (based on NYSDEC TAGM HWR-94-4046, January 24, 1996) are presented in the table for comparison and are based upon an assumed soil organic carbon content of 1 percent. Only low levels of PCE, 2-butanone, and acetone were detected in the soil samples from HGB-1 (40-42') and HGB-3 (10-12' and 20-22'). None of these samples exceeded the soil criteria. As a result, these samples effectively define the lateral extent of VOC contamination in the unsaturated zone. This contamination is localized around HP-8 and HP-9 in the unsaturated zone and does not extend to HGB-2 or HGB-3.

The results of soil boring sampling in previous studies are summarized in Table 3-2. As shown in this table, PCE was detected in samples from the capillary fringe and saturated zone at MW-12, 13, and 13D at concentrations of 180 to 30,000 mg/kg. The borings for wells MW-13 and 13D were located adjacent to HP-8, HP-9, and HGB-2. The shallowest soil samples from well borings MW-13 and 13D were collected at 45-47 ft. At the time of collection (March 1996), this depth represented the

Table 3-1

Soil Boring Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Soil Criteria [1] (ug/kg)	Location:	HGB-1	HGB-1	HGB-2	HGB-3	HGB-3	HGB-4
		Media:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Depth (ft):	30-32	40-42	35-37	10-12	20-22	10-12
		Date Sampled:	4/1/97	4/1/97	4/7/97	4/7/97	4/7/97	4/2/97
		Time Sampled:	14:30	14:50	9:30	13:20	13:40	13:35
		Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
VOCs								
Methylene Chloride	100		10 U	10 U	10 U	10 U	10 U	10 U
1,1 - Dichloroethene	400		10 U	10 U	10 U	10 U	10 U	10 U
1,1 - Dichloroethane	200		10 U	10 U	10 U	10 U	10 U	10 U
Total - 1,2 - Dichloroethene	NA		10 U	10 U	10 U	10 U	10 U	10 U
1,1,1 - Trichloroethane	800		10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	700		10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	1,400		10 U	220	10 U	47	120	10 U
Toluene	1,500		10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	1,700		10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	5,500		10 U	10 U	10 U	10 U	10 U	10 U
Xylenes (Total)	1,200		10 U	10 U	10 U	10 U	10 U	10 U
Acetone	200		10 U	10 U	10 U	10 U	34	10 U
2 - Butanone (MEK)	300		10 U	10 U	10 U	10 U	13	10 U
4 - Methyl - 2Pentanone (MIBK)	1,000		10 U	10 U	10 U	10 U	10 U	10 U
Subtotal VOCs Detected			0	220	0	47	167	0
VOC TICs								
Unknown Hydrocarbon (3.88)								
Unknown Hydrocarbon (4.27)								
Unknown (14.45)								
c3 Subs. Benzene (14.74)								
Benzene, propyl (15.12)								
c3 Subs. Benzene (15.21)								
c3 Subs. Benzene (15.25)								
c3 Subs. Benzene (15.26)								
c3 Subs. Benzene (15.51)								
Hexanal (16.02)					9 J			

Notes:

1. Source: NYSDEC TAGM, HWR-94-4046, January 24, 1994. Criteria in this table is based on an assumed soil organic carbon content of 1%.
2. Data qualifiers are summarized as follows:
   U - denotes analyte was not detected. Value shown is the detection limit.
   J - denotes analyte was detected, but concentration is estimated.
   B - denotes that analyte was present in the laboratory blank.

Table 3-2

Historical Soil Boring Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

Location:	B-1	B-2	B-3	B-4		B-5		B-6	
Date Sampled:	12/20/94	12/20/94	12/20/94	1/25/95	1/25/95	1/25/95	1/25/95	1/25/95	1/25/95
Analytical Method:	TPH/Metals	TPH/Metals	TPH/Metals	8260/TPH	8260/TPH	8260/TPH	8260/TPH	8260/TPH	8260/TPH
Depth (ft):	NA	NA	NA	5-7	15-17	5-7	15-17	5-7	15-17
PARAMETER Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs									
Tetrachloroethene[1]	NA	NA	NA	ND	ND	ND	ND	ND	ND
Subtotal VOCs Detected	0	0	0	0	0	0	0	0	0
TPH	35	420							
Diesel #2			ND	ND	ND	ND	ND	ND	ND
Lubricating Oil			ND	ND	ND	ND	ND	ND	ND
#4 / #6 Fuel Oil			ND	ND	ND	ND	ND	ND	ND
METALS									
Arsenic	2.4	1.6	1.9	NA	NA	NA	NA	NA	NA
Barium	ND	ND	ND	NA	NA	NA	NA	NA	NA
Chromium	5.5	2.9	2.5	NA	NA	NA	NA	NA	NA
Lead	5.5	2.2	1.1	NA	NA	NA	NA	NA	NA
Silver	ND	ND	ND	NA	NA	NA	NA	NA	NA
Copper	24	4.8	ND	NA	NA	NA	NA	NA	NA
Mercury	ND	1.8	ND	NA	NA	NA	NA	NA	NA
Zinc	17	6.8	4.5	NA	NA	NA	NA	NA	NA
Cyanide	ND	2.4	ND	NA	NA	NA	NA	NA	NA

Table 3-2

Historical Soil Boring Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

Location: / Date Sampled: / Analytical Method: / Depth (ft): / PARAMETER / Units:	SB-7A 3/4/96 8260/TPH/ Metals 10-12 mg/kg	SB-8 3/4/96 8260/TPH/ Metals 15-17 mg/kg	SB-9 3/4/96 8260/TPH/ Metals 20-22 mg/kg	SB-10 3/4/96 8260/TPH/ Metals 5-7 mg/kg	HP-1 12/20/94 TPH/Metals 50[2] mg/kg	HP-2 12/20/94 TPH/Metals 50[2] mg/kg	HP-4 12/20/94 TPH/Metals 50[2] mg/kg	HP-5 12/20/94 TPH/Metals 50[2] mg/kg	HP-6 1/25/95 8260/TPH 10-12 mg/kg
VOCs									
Tetrachloroethene[1]	ND	ND	ND	ND	NA	NA	NA	NA	ND
Subtotal VOCs Detected	0	0	0	0	0	0	0	0	0
TPH						26			
Diesel #2	ND	ND	ND	ND	ND		ND	ND	ND
Lubricating Oil	ND	ND	21	ND	ND		ND	ND	ND
#4 / #6 Fuel Oil	ND	ND	ND	250	ND		ND	ND	ND
METALS									
Arsenic	ND	ND	0.5	2.5	ND	ND	NA	1.5	NA
Barium	23	58	489	20	ND	ND	NA	ND	NA
Chromium	ND	ND	ND	8	1.5	2.2	NA	2.6	NA
Lead	0.5	0.6	0.7	2.1	1.2	3.1	NA	1.1	NA
Silver	ND	ND	ND	2	ND	ND	NA	ND	NA
Copper	ND	ND	ND	ND	ND	2.8	NA	ND	NA
Mercury	ND	ND	ND	ND	ND	ND	NA	ND	NA
Zinc	ND	ND	ND	ND	4.3	5.5	NA	4.4	NA
Cyanide	ND	ND	ND	ND	ND	ND	NA	ND	NA

Table 3-2

Historical Soil Boring Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

Location:	HP-6				MW-11	MW-12		MW-13	
Date Sampled:	1/25/95	1/25/95	1/25/95	1/25/95	1/25/95	3/4/96	3/4/96	3/4/96	3/4/96
Analytical Method:	8260/TPH	8260/TPH	8260/TPH	8260/TPH	8120	8260/TPH	8260/TPH	8260/TPH	8260/TPH
Depth (ft):	20-22	30-32	40-42	40-45*	10-12	45-47	55-56.5	45-47	54-54.7
PARAMETER Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs									
Tetrachloroethene[1]	ND	ND	ND	ND	ND	180	ND	180	30,000
Subtotal VOCs Detected	0	0	0	0	0	180	0	180	30,000
TPH									
Diesel #2	ND	ND	ND	ND	NA	290	ND	NA	550
Lubricating Oil	ND	ND	ND	ND	NA	1,100	ND	NA	450
#4 / #6 Fuel Oil	ND	ND	ND	ND	NA	ND	ND	NA	ND
METALS									
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-2

Historical Soil Boring Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

Location:	MW-13D				MW-14		MW-15
Date Sampled:	7/22/96	7/22/96	7/22/96	7/22/96	3/4/95	3/4/95	3/4/95
Analytical Method:	8010	8010	8010	8010	8260/TPH	8260/TPH	8260/TPH
Depth (ft):	45	62	67	75-77	3-5	43-45	50-52
PARAMETER Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs							
Tetrachloroethene[1]	1,000	200	ND	ND	ND	ND	ND
Subtotal VOCs Detected	1,000	200	0	0	0	0	0
TPH							
Diesel #2	NA	NA	NA	NA	ND	ND	ND
Lubricating Oil	NA	NA	NA	NA	ND	ND	ND
#4 / #6 Fuel Oil	NA	NA	NA	NA	ND	ND	ND
METALS							
Arsenic	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA

Notes:

1. Tetrachloroethene reported in micrograms per kilogram (ug/kg)
2. Approximate depth to watertable (sample reportedly taken at the watertable)
3. "*" Sample was collected off the auger due to lack of spoon recovery and is believed to be from a depth of approximatley 45 to 50 ft.
4. "ND" Compound not detected above the analytical detection limit
5. "NA" Compound not Analyzed

capillary fringe. Contamination at this depth, while not at shallower depths as indicated by HGB-2 and similarly by HGB-3, indicates the contamination spread laterally upon encountering the capillary fringe and the water table. This is consistent with the conceptualized flow of a NAPL.

In addition to VOCs, total petroleum hydrocarbons (TPH) in the form of fuel/lubricating oil were present in previous borings B-1, B-2, SB-9, SB-10, HP-2, MW-12, and MW-13.

3.2 Groundwater Sampling Results

The analytical results for groundwater samples collected from soil borings (groundwater screening results) and from monitoring wells are presented in Table 3-3. This table presents a summary for the compounds detected in the site groundwater samples. The full analytical results can be found in Appendices E and F. Available NYSDEC ambient groundwater quality standards (6 NYCRR Part 703) and criteria (NYSDEC Technical and Operational Guidance Series 1.1.1 and 1.1.2) are presented in the table for comparison. Sample results that exceed standards or criteria are highlighted in the table. The data from historical groundwater monitoring are summarized in Table 3-4.

Volatile Organic Compounds (VOCs)

Similar to previous studies, the principal VOC contaminants detected in the groundwater during the supplemental investigation were PCE, TCE, 1,1,1-TCA, and 1,2-DCE at concentration ranges of 37-48,000, 1-6,100, 2-430, and 1-2,200 ug/l, respectively for each contaminant. The highest concentrations of these VOCs observed in the screening and monitoring well samples were as follows:

Contaminant	*Highest Observed Concentration (ug/l)*	
	GW Screening Samples	*Monitoring Wells*
PCE	HGB-1 (53-55'): 48,000	MW-8: 19,000
TCE	HGB-1 (53-55'): 1,500	MW-12: 6,100
1,1,1-TCA	HGB-1 (53-55'): 430	MW-7: 260
1,2-DCE	HGB-1 (53-55'): 160	MW-8 & MW-12: 2,200

The high concentrations of PCE and TCE are indicative of the continuing presence of a NAPL. Table 3-5 compares the maximum monitoring well concentrations against the aqueous solubilities for several contaminants. PCE and TCE were observed at 12.7 and 0.6 percent of their maximum solubility. Previous research has found that water concentrations greater than 1 percent of the maximum solubility are "highly suggestive" of NAPL presence (USEPA, 1993). This is consistent with the prior finding that a free product was present at HP-8 and HP-9. PCE and TCE have specific densities of 1.6 and 1.5 g/cc (USEPA, 1993), making PCE and TCE NAPL denser than water. As a dense NAPL (or DNAPL), they may penetrate deep into the saturated zone irrespective of groundwater flow.

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	HGB-1	HGB-1[3]	HGB-1	HGB-1[3]	HGB-1	HGB-1[3]	HGB-1	HGB-1	HGB-1	HGB-1
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:	53-55	53-55	62-64	62-64	70-72	70-72	88-90	98-100	113-115	128-130
		Date Sampled:	4/3/97	4/3/97	4/3/97	4/3/97	4/3/97	4/3/97	4/4/97	4/4/97	4/4/97	4/4/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOCs												
Methylene Chloride	5		50 U	700 BJ	50 U	200 BJ	50 U	98 BJ	50 U	50 U	50 U	50 U
1,1 - Dichloroethene	5		50 U	1,000 U	50 U	250 U	50 U	120 U	50 U	50 U	50 U	50 U
1,1 - Dichloroethane	5		17 J	1,000 U	18 J	250 U	50 U	120 U	50 U	50 U	50 U	6 J
Total - 1,2 - Dichloroethene	5		160	1,000 U	27 J	250 U	50 U	120 U	30 J	15 J	11 J	100
1,1,1 - Trichloroethane	5		430	370 J	40 J	250 U	20 J	120 U	74	17 J	13 J	150
Trichloroethene	5		1,500 J	1,400	160	230 J	60	45 J	200	53	42 J	340
Tetrachloroethene	5		48,000	44,000	4,900	4,800	3,100 B	3,600	20,000	7,400	6,500	14,000
Toluene	5		24 J	1,000 U	50 U	250 U	50 U	120 U	50 U	50 U	50 U	7 J
Chlorobenzene	5		50 U	1,000 U	50 U	250 U	50 U	120 U	50 U	50 U	50 U	50 U
Ethylbenzene	5		14 J	1,000 U	50 U	250 U	50 U	120 U	6 J	50 U	50 U	50 U
Xylenes (Total)	5		210	1,000 U	13 J	250 U	14 J	120 U	92	25 J	23 J	94
Acetone	50		50 U	2,000 U	50 U	500 U	8 J	250 U	50 U	50 U	50 U	50 U
2 - Butanone (MEK)	50		50 U	2,000 U	50 U	500 U	50 U	250 U	50 U	50 U	50 U	50 U
4 - Methyl - 2Pentanone (MIBK)	50		50 U	2,000 U	50 U	500 U	50 U	250 U	50 U	50 U	50 U	50 U
Subtotal VOCs Detected			50,355	46,470	5,158	5,230	3,202	3,743	20,402	7,510	6,589	14,697
SVOCs												
Naphthalene	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methyphenol	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Subtotal SVOCs Detetected												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	Trip Blank	HGB-2	HGB-3	Trip Blank	HGB-5	HGB-5	HGB-5	HGB-5	HGB-5	HGB-5
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft) [2]:		56-58	55-57		62-64	70-72	88-90	103-105	118-120	130-132
		Date Sampled:	4/3/97	4/7/97	4/7/97	4/7/97	4/8/97	4/8/97	4/8/97	4/8/97	4/8/97	4/8/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOCs												
Methylene Chloride	5		4 BJ	50 U	10 U	3 J	50 U	50 U	10 U	10 U	10 U	10 U
1,1 - Dichloroethene	5		5 U	50 U	10 U	10 U	50 U	5 J	10 U	10 U	10 U	10 U
1,1 - Dichloroethane	5		5 U	9 J	5 J	10 U	50 U	50 U	10 U	10 U	10 U	10 U
Total - 1,2 - Dichloroethene	5		5 U	9 J	10 U	10 U	29 J	14 J	13	10 J	32	41
1,1,1 - Trichloroethane	5		5 U	77	4 J	10 U	25 J	240	3 J	2 J	5 J	6 J
Trichloroethene	5		5 U	180	2 J	10 U	59	720	11	10 J	32	38
Tetrachloroethene	5		5 U	1,900	120	10 U	2,900	36,000	180	150	330	300
Toluene	5		5 U	50 U	10 U	10 U	50 U	8 J	10 U	10 U	10 U	10 U
Chlorobenzene	5		5 U	50 U	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U
Ethylbenzene	5		5 U	50 U	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U
Xylenes (Total)	5		5 U	50 U	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U
Acetone	50		10 U	50 U	6 J	10 U	50 U	50 U	10 U	10 U	10 U	1 J
2 - Butanone (MEK)	50		10 U	50 U	2 J	10 U	50 U	50 U	10 U	10 U	10 U	10 U
4 - Methyl - 2Pentanone (MIBK)	50		10 U	50 U	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U
Subtotal VOCs Detected			4	2,175	139	3	3,013	36,987	207	172	399	386
SVOCs												
Naphthalene	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methyphenol	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Subtotal SVOCs Detetected												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	Trip Blank	HGB-7	HGB-7	HGB-7	HGB-7	HGB-7	HGB-7	HGB-7	HGB-8	HGB-8
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:		55-57	62-64	70-72	88-90	103-105	118-120	133-135	55-57	62-64
		Date Sampled:	4/8/97	4/30/97	4/30/97	4/30/97	4/30/97	4/30/97	4/30/97	4/30/97	5/1/97	5/1/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOCs												
Methylene Chloride	5		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
1,1 - Dichloroethene	5		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
1,1 - Dichloroethane	5		10 U	4 J	13	4 J	10 U	10 U	10 U	10 U	50 U	7 J
Total - 1,2 - Dichloroethene	5		10 U	49	25	2 J	6 J	2 J	1 J	2 J	1600	50 U
1,1,1 - Trichloroethane	5		10 U	26	17	7 J	10 U	10 U	10 U	10 U	50 U	50 U
Trichloroethene	5		10 U	110	51	4 J	2 J	3 J	2 J	3 J	1800	51
Tetrachloroethene	5		10 U	1300	740	410	77	110	140	160	1400	2400
Toluene	5		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
Chlorobenzene	5		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
Ethylbenzene	5		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
Xylenes (Total)	5		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
Acetone	50		10 U	2 J	2 J	1 J	2 J	2 J	2 J	2 J	50 U	50 U
2 - Butanone (MEK)	50		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
4 - Methyl - 2Pentanone (MIBK)	50		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
Subtotal VOCs Detected			0	1,491	868	428	87	117	145	167	4,800	2,458
SVOCs												
Naphthalene	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methyphenol	5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Subtotal SVOCs Detetected												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	HGB-8	HGB-8	HGB-8	HGB-8	HGB-8	HGB-8	Field Blank	MW-2	MW-3	MW-4	MW-7
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:	70-72	88-90	103-105	118-120	133-135	150-152		52.3[4]	57.8[4]	58.1[4]	40-60
		Date Sampled:	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/6/97	4/3/97	4/4/97	4/3/97	4/3/97	4/3/97
		Time Sampled:											
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOCs													
Methylene Chloride	5		10 U	50 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U
1,1 - Dichloroethene	5		10 U	50 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	5 J
1,1 - Dichloroethane	5		10 U	50 U	10 U	10 U	1 J	50 U	10 U	2 J	2 J	2 J	13
Total - 1,2 - Dichloroethene	5		74	50 U	18	9 J	15	50 U	10 U	10 U	110	30	900 JD
1,1,1 - Trichloroethane	5		29	50 U	2 J	1 J	8 J	50 U	10 U	11	6 J	6 J	260 JD
Trichloroethene	5		150 J	39 J	14	6 J	23	50 U	10 U	7 J	160 J	19	1,500 D
Tetrachloroethene	5		18000	340	420	490	1500	50 U	10 U	97	320 D	100	14,000 D
Toluene	5		10 U	50 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	8 J
Chlorobenzene	5		10 U	50 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	5		10 U	50 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	9 J
Xylenes (Total)	5		1 J	50 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	90
Acetone	50		10 U	50 U	2 J	2 J	3 J	50 U	2 J	10 U	10 U	10 U	10 U
2 - Butanone (MEK)	50		10 U	50 U	10 U	10 U	10 U	50 U	10 U	10 UJ	10 U	10 U	10 U
4 - Methyl - 2Pentanone (MIBK)	50		1 J	50 U	10 U	10 U	10 U	50 U	10 U	10 UJ	10 U	10 U	10 U
Subtotal VOCs Detected			18,255	379	456	508	1,550	0	2	117	598	157	16,785
SVOCs													
Naphthalene	10		NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	6 J
4-Chloro-3-methyphenol	5		NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	3 J
2-Methylnaphthalene	50		NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	4 J
Dimethyl phthalate	50		NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U
N-nitrosodiphenylamine	NA		NA	NA	NA	NA	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Di-n-butyl phthalate	50		NA	NA	NA	NA	NA	NA	5 J	10 U	10 U	10 U	10 U
Subtotal SVOCs Detected									5	0	0	0	13

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	MW-8		MW-9		MW-10		MW-11		MW-12		MW-13		MW-13D		MW-14		MW-15		MW-16D	
		Media:	GW		GW		GW		GW		GW		GW		GW		GW		GW		GW	
		Depth (ft)[2]:	40-60		45-60		45-60		45-60		46.5-56.5		48-58		80-90		46-56		48.5-58.5		79.5-89.5	
		Date Sampled:	4/3/97		4/3/97		4/3/97		4/3/97		4/3/97		4/3/97		4/3/97		4/4/97		4/4/97		4/3/97	
		Time Sampled:																				
		Units:	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
VOCs																						
Methylene Chloride	5		10	U	50	U	50	U	50	U	50	U	50	U	50	U	10	U	10	U	10	U
1,1 - Dichloroethene	5		4	J	50	U	50	U	50	U	50	U	50	U	50	U	10	U	10	U	10	U
1,1 - Dichloroethane	5		10	J	7	JD	11	J	9	JD	9	J	7	J	50	U	1	J	2	J	10	U
Total - 1,2 - Dichloroethene	5		2,200	D	520	D	1,200	D	130	D	2,200	D	950	D	6	J	34		10	U	5	J
1,1,1 - Trichloroethane	5		150		13	JD	170		40	JD	38	J	29	J	50	U	6	J	4	J	10	U
Trichloroethene	5		1,900	D	540	D	2,300	D	300	D	6,100	D	590	D	10	J	26		4	J	1	J
Tetrachloroethene	5		19,000	D	1,200	D	12,000	D	900	D	7,100	D	3,500	D	4,600	D	120		60		260	D
Toluene	5		5	J	50	U	5	J	50	U	50	U	50	U	50	U	10	U	2	J	10	U
Chlorobenzene	5		10	U	50	U	50	U	50	U	50	U	50	U	50	U	10	U	10	U	10	U
Ethylbenzene	5		11		50	U	7	J	50	U	8	J	50	U	50	U	10	U	10	U	10	U
Xylenes (Total)	5		110		50	U	41	J	50	U	38	J	50	U	50	U	10	U	10	U	10	U
Acetone	50		10	U	50	U	50	U	50	U	50	U	50	U	50	U	10	U	10	U	10	U
2 - Butanone (MEK)	50		10	U	50	U	50	U	50	UJ	50	U	50	U	50	U	10	UJ	5	J	10	UJ
4 - Methyl - 2Pentanone (MIBK)	50		10	U	50	U	50	U	50	UJ	50	U	50	U	50	U	10	UJ	10	UJ	10	UJ
Subtotal VOCs Detected			23,390		2,280		15,734		1,379		15,491		5,076		4,616		187		77		266	
SVOCs																						
Naphthalene	10		9	J	10	U	5	J	10	U	3	J	2	J	10	U	10	U	10	U	10	U
4-Chloro-3-methyphenol	5		3	J	10	U	6	J	10	U	7	J	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	50		6	J	10	U	3	J	10	U	1	J	4	J	10	U	10	U	10	U	10	U
Dimethyl phthalate	50		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
N-nitrosodiphenylamine	NA		10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Di-n-butyl phthalate	50		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Subtotal SVOCs Detetected			18		0		14		0		11		6		0		0		0		0	

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	MW-17	MW-17Dup	Trip Blank	Trip Blank	Trip Blank	Field Blank	MW-18D	MW-19	MW-20D	Trip Blank
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:	50-60	50-60					133-143	160-170	175-185	
		Date Sampled:	4/4/97	4/4/97	4/2/97	4/3/97	4/4/97	5/22/97	5/22/97	5/22/97	5/22/97	5/22/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOCs												
Methylene Chloride	5		10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U
1,1 - Dichloroethene	5		10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U
1,1 - Dichloroethane	5		3 J	3 J	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U
Total - 1,2 - Dichloroethene	5		2 J	1 J	10 U	10 U	10 U	10 U	16 J	10 U	10 U	10 U
1,1,1 - Trichloroethane	5		16	15	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U
Trichloroethene	5		8 J	8 J	10 U	10 U	10 U	10 U	89	10 U	10 U	10 U
Tetrachloroethene	5		93	91	10 U	10 U	10 U	10 U	4,100 D	37	51	10 U
Toluene	5		10 U	10 U	10 U	10 U	10 U	10 U	21 J	2 J	2 J	10 U
Chlorobenzene	5		10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U
Ethylbenzene	5		10 U	10 U	10 U	10 U	10 U	10 U	6 J	10 U	10 U	10 U
Xylenes (Total)	5		10 U	10 U	10 U	10 U	10 U	10 U	63	5 J	1 J	10 U
Acetone	50		10 U	10 U	10 U	10 U	2 J	10 U	50 U	10 U	10 U	10 U
2 - Butanone (MEK)	50		10 UJ	10 UJ	2 J	10 UJ	10 UJ	10 U	50 U	10 U	10 U	10 U
4 - Methyl - 2Pentanone (MIBK)	50		10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	50 U	10 U	10 U	10 U
Subtotal VOCs Detected			122	118	2	0	2	0	4,295	44	54	0
SVOCs												
Naphthalene	10		10 U	10 U	NA	NA	NA	10 U	4 J	10 U	10 U	NA
4-Chloro-3-methyphenol	5		10 U	10 U	NA	NA	NA	10 U	10 U	10 U	10 U	NA
2-Methylnaphthalene	50		10 U	10 U	NA	NA	NA	10 U	10 U	10 U	10 U	NA
Dimethyl phthalate	50		10 U	10 U	NA	NA	NA	10 U	3 J	10 U	10 U	NA
N-nitrosodiphenylamine	NA		10 UJ	10 UJ	NA	NA	NA	10 U	1 J	10 U	10 U	NA
Di-n-butyl phthalate	50		10 U	10 UJ	NA	NA	NA	10 U	1 J	10 U	10 U	NA
Subtotal SVOCs Detetected			0	0				0	9	0	0	

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	HGB-1	HGB-1 [3]	HGB-1	HGB-1 [3]	HGB-1	HGB-1 [3]	HGB-1	HGB-1	HGB-1	HGB-1
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft) [2]:	53-55	53-55	62-64	62-64	70-72	70-72	88-90	98-100	113-115	128-130
		Date Sampled:	4/3/97	4/3/97	4/3/97	4/3/97	4/3/97	4/3/97	4/4/97	4/4/97	4/4/97	4/4/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
METALS												
Aluminum	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	4		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	300		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	100		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC TICs												
Unknown Hydrocarbon (3.88)												
Propene (3.91)												
Propene (3.94)												
Unknown Hydrocarbon (4.27)												
Unknown Hydrocarbon (4.32)												
Unknown (14.45)			37 J									
c3 Subs. Benzene (14.74)												
Benzene, propyl (15.12)												
c3 Subs. Benzene (15.21)												
c3 Subs. Benzene (15.25)			410 J				39 J			76 J	78 J	160 J
c3 Subs. Benzene (15.26)									200 J			
c3 Subs. Benzene (15.51)			38 J									
c3 Subs. Benzene (16.37)												
c3 Subs. Benzene (17.24)												
Hexanal (16.02)												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	Trip Blank	HGB-2	HGB-3	Trip Blank	HGB-5	HGB-5	HGB-5	HGB-5	HGB-5	HGB-5
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:		56-58	55-57		62-64	70-72	88-90	103-105	118-120	130-132
		Date Sampled:	4/3/97	4/7/97	4/7/97	4/7/97	4/8/97	4/8/97	4/8/97	4/8/97	4/8/97	4/8/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
METALS												
Aluminum	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	4		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	300		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	100		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC TICs												
Unknown Hydrocarbon (3.88)					11 J							
Propene (3.91)												
Propene (3.94)												
Unknown Hydrocarbon (4.27)					8 J							
Unknown Hydrocarbon (4.32)												
Unknown (14.45)												
c3 Subs. Benzene (14.74)												
Benzene, propyl (15.12)												
c3 Subs. Benzene (15.21)												
c3 Subs. Benzene (15.25)												
c3 Subs. Benzene (15.26)												
c3 Subs. Benzene (15.51)												
c3 Subs. Benzene (16.37)												
c3 Subs. Benzene (17.24)												
Hexanal (16.02)												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	Trip Blank	HGB-7	HGB-7	HGB-7	HGB-7	HGB-7	HGB-7	HGB-7	HGB-8	HGB-8
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:		55-57	62-64	70-72	88-90	103-105	118-120	133-135	55-57	62-64
		Date Sampled:	4/8/97	4/30/97	4/30/97	4/30/97	4/30/97	4/30/97	4/30/97	4/30/97	5/1/97	5/1/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
METALS												
Aluminum	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	25		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	1,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	200		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	300		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	4		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	300		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	100		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC TICs												
Unknown Hydrocarbon (3.88)												
Propene (3.91)						6 JN						
Propene (3.94)					10 JN			6 JN		8 JN		
Unknown Hydrocarbon (4.27)												
Unknown Hydrocarbon (4.32)					6 J							
Unknown (14.45)												
c3 Subs. Benzene (14.74)												
Benzene, propyl (15.12)												
c3 Subs. Benzene (15.21)												
c3 Subs. Benzene (15.25)												
c3 Subs. Benzene (15.26)												
c3 Subs. Benzene (15.51)												
c3 Subs. Benzene (16.37)												
c3 Subs. Benzene (17.24)												
Hexanal (16.02)												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	HGB-8	HGB-8	HGB-8	HGB-8	HGB-8	HGB-8	Field Blank	MW-2	MW-3	MW-4	MW-7
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:	70-72	88-90	103-105	118-120	133-135	150-152		52.3[4]	57.8[4]	58.1[4]	40-60
		Date Sampled:	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/6/97	4/3/97	4/4/97	4/3/97	4/3/97	4/3/97
		Time Sampled:											
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
METALS													
Aluminum	NA		NA	NA	NA	NA	NA	NA	14.6 U	1,150.0	162.0 B	183.0 B	303.0
Arsenic	25		NA	NA	NA	NA	NA	NA	2.6 J	2.2 U	3.2 U	3.6 U	6.0 U
Barium	1,000		NA	NA	NA	NA	NA	NA	0.8 U	338.0	616.0	65.1 B	239.0
Beryllium	3		NA	NA	NA	NA	NA	NA	0.1 U	0.1 B	0.8 B	0.1 B	0.1 B
Cadmium	10		NA	NA	NA	NA	NA	NA	0.4 U	0.4 U	0.83 B	0.4 U	0.5 B
Calcium	NA		NA	NA	NA	NA	NA	NA	98.6 B	11,000.0	12,500.0	28,300.0	13,200.0
Chromium	50		NA	NA	NA	NA	NA	NA	0.4 U	33.8	11.7	8.2 B	16.4
Cobalt	NA		NA	NA	NA	NA	NA	NA	1.0 U	2.8 B	4.9 B	3.1 B	21.8 B
Copper	200		NA	NA	NA	NA	NA	NA	2.8 B	7.3 U	4.7 U	3.4 U	4.0 U
Iron	300		NA	NA	NA	NA	NA	NA	2.6 U	2,550.0	786.0	785.0	8,060.0
Lead	25		NA	NA	NA	NA	NA	NA	0.75 J	2.3 U	0.7 U	0.7 U	0.7 U
Magnesium	35,000		NA	NA	NA	NA	NA	NA	22.7 U	2,350.0 B	2,460.0 B	4,560.0 B	2,410.0 B
Manganese	300		NA	NA	NA	NA	NA	NA	0.3 U	36.1	303.0	15.4	1,930.0
Nickel	NA		NA	NA	NA	NA	NA	NA	1.6 U	28.0 B	20.1 B	15.7 B	37.0 B
Potassium	NA		NA	NA	NA	NA	NA	NA	16.9 U	1,280.0 B	1,940.0 B	4,490.0 B	2,040.0 B
Selenium	10		NA	NA	NA	NA	NA	NA	1.7 U	1.7 U	1.7 U	2.4 J	1.7 U
Silver	50		NA	NA	NA	NA	NA	NA	0.5 U	0.5 U	1.2 B	1.3 B	0.66 B
Sodium	20,000		NA	NA	NA	NA	NA	NA	158.0 B	10,100.0	12,000.0	24,600.0	14,900.0
Thallium	4		NA	NA	NA	NA	NA	NA	1.3 U	1.4 B	2.9 B	1.3 U	1.3 U
Vanadium	NA		NA	NA	NA	NA	NA	NA	1.1 U	4.0 B	1.8 B	1.3 B	1.6 B
Zinc	300		NA	NA	NA	NA	NA	NA	8.2 B	31.4 U	13.9 U	26.6 U	14.4 U
Cyanide	100		NA	NA	NA	NA	NA	NA	10.0 U	10.0 U	69.7	10.0 U	10.0 U
VOC TICs													
Unknown Hydrocarbon (3.88)													
Propene (3.91)			6 JN										
Propene (3.94)					6 JN		8 JN						
Unknown Hydrocarbon (4.27)													
Unknown Hydrocarbon (4.32)													
Unknown (14.45)													
c3 Subs. Benzene (14.74)													
Benzene, propyl (15.12)													
c3 Subs. Benzene (15.21)													21 JN
c3 Subs. Benzene (15.25)													
c3 Subs. Benzene (15.26)													27 JN
c3 Subs. Benzene (15.51)													11 JN
c3 Subs. Benzene (16.37)													
c3 Subs. Benzene (17.24)													
Hexanal (16.02)													

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	MW-8		MW-9		MW-10		MW-11		MW-12		MW-13		MW-13D		MW-14		MW-15		MW-16D	
		Media:	GW		GW		GW		GW		GW		GW		GW		GW		GW		GW	
		Depth (ft)[2]:	40-60		45-60		45-60		45-60		46.5-56.5		48-58		80-90		46-56		48.5-58.5		79.5-89.5*	
		Date Sampled:	4/3/97		4/3/97		4/3/97		4/3/97		4/3/97		4/3/97		4/3/97		4/4/97		4/4/97		4/3/97	
		Time Sampled:																				
		Units:	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
METALS																						
Aluminum	NA		241.0		187.0	B	1,370.0		1,860.0		531.0		245.0		292.0		583.0		357.0		845.0	
Arsenic	25		5.0	U	3.0	U	10.5	U	4.2	U	5.0	U	2.2	U	2.2	U	2.6	U	2.4	U	2.9	U
Barium	1,000		163.0	B	656.0		231.0		274.0		126.0	B	223.0		62.5	B	102.0	B	455.0		44.9	B
Beryllium	3		0.5	B	0.1	U	0.1	B	0.1	B	0.2	B	0.1	U	0.1	U	0.1	U	0.1	B	0.1	B
Cadmium	10		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Calcium	NA		11,600.0		9,710.0		15,700.0		12,400.0		24,100.0		19,500.0		11,000.0		17,400.0		3,840.0	B	9,060.0	
Chromium	50		4.9	B	11.3		6.4	B	6.9	B	12.8		5.3	B	3.4	B	5.1	B	12.7		12.4	
Cobalt	NA		14.8	B	4.5	B	32.1	B	2.6	B	14.9	B	4.3	B	1.4	B	2.2	B	2.0	B	1.5	B
Copper	200		2.7	U	2.8	U	5.7	U	3.8	U	10.4	U	5.1	U	2.2	U	2.6	U	3.9	U	4.4	U
Iron	300		5,800.0		629.0		17,500.0		2,770.0		10,500.0		2,770.0		502.0		1,570.0		1,380.0		1,660.0	
Lead	25		0.7	U	0.7	U	1.5	U	2.4	U	0.7	U	0.7	U	0.92	U	0.7	U	0.81	U	1.7	U
Magnesium	35,000		2,050.0	B	1,760.0	B	2,990.0	B	2,190.0	B	4,200.0	B	3,150.0	B	2,130.0	B	3,500.0	B	935.0	B	1,620.0	B
Manganese	300		1,060.0		247.0		2,640.0		329.0		1,310.0		714.0		51.1		19.0		32.3		51.4	
Nickel	NA		9.8	B	16.4	B	13.0	B	8.6	B	29.3	B	6.8	B	3.5	B	3.9	B	15.7	B	28.0	B
Potassium	NA		2,600.0	B	1,590.0	B	2,510.0	B	2,600.0	B	6,660.0		6,250.0		2,380.0	B	3,210.0	B	514.0	B	1,590.0	B
Selenium	10		1.7	U	1.7	U	1.7	U	1.7	U	3.9	J	10.1	J	1.7	U	2.0	J	1.7	U	1.7	U
Silver	50		0.5	U	0.56	B	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.51	B
Sodium	20,000		20,800.0		13,300.0		16,900.0		21,100.0		27,500.0		15,600.0		21,100.0		33,400.0		2,640.0	B	30,700.0	
Thallium	4		2.6	B	1.3	U	1.5	B	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.8	B	1.3	U
Vanadium	NA		1.1	U	1.1	U	4.3	B	5.5	B	1.7	B	1.2	B	1.2	B	1.8	B	1.5	B	2.8	B
Zinc	300		18.0	U	10.8	U	21.7	U	14.3	U	20.2	U	15.7	U	14.8	U	13.4	U	22.4	U	20.7	U
Cyanide	100		21.3		21.8		10.0	U	10.0	U	18.5		57.7		10.0	U	34.3		10.0	U	10.0	U
VOC TICs																						
Unknown Hydrocarbon (3.88)																						
Propene (3.91)																						
Propene (3.94)																						
Unknown Hydrocarbon (4.27)																						
Unknown Hydrocarbon (4.32)																						
Unknown (14.45)																						
c3 Subs. Benzene (14.74)			7	JN																		
Benzene, propyl (15.12)			6	JN																		
c3 Subs. Benzene (15.21)			44	JN																		
c3 Subs. Benzene (15.25)			65	JN																		
c3 Subs. Benzene (15.26)											41	JN	26	JN								
c3 Subs. Benzene (15.51)			20	JN																		
c3 Subs. Benzene (16.37)																						
c3 Subs. Benzene (17.24)																						
Hexanal (16.02)																						

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	MW-17	MW-17Dup	Trip Blank	Trip Blank	Trip Blank	Field Blank	MW-18D	MW-19	MW-20D	Trip Blank
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:	50-60	50-60					133-143	160-170	175-185	
		Date Sampled:	4/4/97	4/4/97	4/2/97	4/3/97	4/4/97	5/22/97	5/22/97	5/22/97	5/22/97	5/22/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
METALS												
Aluminum	NA		2,540.0	2,840.0	NA	NA	NA	14.6 U	230.0 J	147.0 J	523.0 J	NA
Arsenic	25		6.7 U	5.5 U	NA	NA	NA	2.2 U	2.2 U	2.2 U	2.2 U	NA
Barium	1,000		330.0	320.0	NA	NA	NA	1.3 B	84.7 B	128.0 B	203.0	NA
Beryllium	3		0.37 B	0.3 B	NA	NA	NA	0.1 U	0.4 B	0.1 U	0.1 U	NA
Cadmium	10		0.4 U	0.4 U	NA	NA	NA	0.4 U	0.63 B	0.4 U	0.4 U	NA
Calcium	NA		9,020.0	9,110.0	NA	NA	NA	312.0 B	10800.0	12300.0	15500.0	NA
Chromium	50		33.7	31.7	NA	NA	NA	0.4 U	2.0 B	5.4 B	3.5 B	NA
Cobalt	NA		5.7 B	5.3 B	NA	NA	NA	1.0 U	2.1 B	2.9 B	1.7 B	NA
Copper	200		9.4 U	9.3 U	NA	NA	NA	2.6 B	11.5 U	20.4 B	16.8 B	NA
Iron	300		8,030.0	7,740.0	NA	NA	NA	3.2 B	427.0	480.0	1380.0	NA
Lead	25		3.5 U	4.7 J	NA	NA	NA	0.7 U	4.6	14.3	11.6	NA
Magnesium	35,000		1,960.0 B	1,980.0 B	NA	NA	NA	42.1 B	2240.0 B	3180.0 B	4020.0 B	NA
Manganese	300		172.0	171.0	NA	NA	NA	0.3 U	319.0	159.0	69.3	NA
Nickel	NA		35.1 B	30.9 B	NA	NA	NA	1.6 U	5.3 B	6.7 B	4.3 B	NA
Potassium	NA		1,750.0 B	1,820.0 B	NA	NA	NA	16.9 U	3700.0 B	2450.0 B	3320.0 B	NA
Selenium	10		1.7 U	3.1 J	NA	NA	NA	1.7 U	1.7 U	1.7 U	1.7 U	NA
Silver	50		1.4 B	1.1 B	NA	NA	NA	0.5 U	0.5 U	0.5 U	0.5 U	NA
Sodium	20,000		15,200.0	15,500.0	NA	NA	NA	123.0 B	63100.0	34600.0	55200.0	NA
Thallium	4		1.9 B	1.3 U	NA	NA	NA	1.3 U	1.3 U	1.3 U	1.3 U	NA
Vanadium	NA		12.9 B	12.9 B	NA	NA	NA	1.1 U	1.1 U	1.1 U	1.1 U	NA
Zinc	300		41.7	22.0 U	NA	NA	NA	12.3 B	30.0 U	23.7 U	27.6 U	NA
Cyanide	100		10.0 U	10.0 U	NA	NA	NA	10.0 U	10.0 U	10.0 U	10.0 U	NA
VOC TICs					NA	NA	NA					NA
Unknown Hydrocarbon (3.88)												
Propene (3.91)												
Propene (3.94)												
Unknown Hydrocarbon (4.27)												
Unknown Hydrocarbon (4.32)												
Unknown (14.45)												
c3 Subs. Benzene (14.74)												
Benzene, propyl (15.12)												
c3 Subs. Benzene (15.21)												
c3 Subs. Benzene (15.25)												
c3 Subs. Benzene (15.26)												
c3 Subs. Benzene (15.51)												
c3 Subs. Benzene (16.37)									34 JN			
c3 Subs. Benzene (17.24)									29 JN			
Hexanal (16.02)												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria[1] (ug/l)	Location:	HGB-1	HGB-1[3]	HGB-1	HGB-1[3]	HGB-1	HGB-1[3]	HGB-1	HGB-1	HGB-1	HGB-1
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:	53-55	53-55	62-64	62-64	70-72	70-72	88-90	98-100	113-115	128-130
		Date Sampled:	4/3/97	4/3/97	4/3/97	4/3/97	4/3/97	4/3/97	4/4/97	4/4/97	4/4/97	4/4/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SVOC TICs												
Unknown Alcohol (4.54)												
Unknown Alchol (4.62)												
Unknown Cyclic cpd (5.09)												
Unknown Cyclic cpd (5.23)												
Unknown Cyclic cpd (5.30)												
Unknown Cyclic cpd (5.31)												
Unknown Cyclic cpd (5.40)												
Unknown Cyclic cpd (5.41)												
c3 Subs. Benzene (5.62)												
c3 Subs. Benzene (5.63)												
c3 Subs. Benzene (5.70)												
c3 Subs. Benzene (5.71)												
c3 Subs. Benzene (5.72)												
Unknown (6.10)												
c3 Subs. Benzene (6.33)												
c3 Subs. Benzene (6.34)												
c3 Subs. Benzene (6.42)												
Unknown (6.89)												
Unknown (6.91)												
Unknown Cyclic cpd (6.91)												
Unknonw Cyclic cpd (7.91)												
Unknown Alkane (8.15)												
Unknown Cyclic cpd (8.62)												
Unknown (8.63)												
Unknown Cyclic cpd (8.70)												
Unknown (9.08)												
Unknown (10.44)												
Unknown (10.45)												
Unknown (15.38)												
Unknown (15.39)												
1,1'-Biphenyl, 4,4'-difluoro												
2(1H)-Naphthalenone, octahydro-												
Benzenemethanol, 4-(1-methylet												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	Trip Blank	HGB-2	HGB-3	Trip Blank	HGB-5	HGB-5	HGB-5	HGB-5	HGB-5	HGB-5
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft) [2]:		56-58	55-57		62-64	70-72	88-90	103-105	118-120	130-132
		Date Sampled:	4/3/97	4/7/97	4/7/97	4/7/97	4/8/97	4/8/97	4/8/97	4/8/97	4/8/97	4/8/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SVOC TICs												
Unknown Alcohol (4.54)												
Unknown Alchol (4.62)												
Unknown Cyclic cpd (5.09)												
Unknown Cyclic cpd (5.23)												
Unknown Cyclic cpd (5.30)												
Unknown Cyclic cpd (5.31)												
Unknown Cyclic cpd (5.40)												
Unknown Cyclic cpd (5.41)												
c3 Subs. Benzene (5.62)												
c3 Subs. Benzene (5.63)												
c3 Subs. Benzene (5.70)												
c3 Subs. Benzene (5.71)												
c3 Subs. Benzene (5.72)												
Unknown (6.10)												
c3 Subs. Benzene (6.33)												
c3 Subs. Benzene (6.34)												
c3 Subs. Benzene (6.42)												
Unknown (6.89)												
Unknown (6.91)												
Unknown Cyclic cpd (6.91)												
Unknonw Cyclic cpd (7.91)												
Unknown Alkane (8.15)												
Unknown Cyclic cpd (8.62)												
Unknown (8.63)												
Unknown Cyclic cpd (8.70)												
Unknown (9.08)												
Unknown (10.44)												
Unknown (10.45)												
Unknown (15.38)												
Unknown (15.39)												
1,1'-Biphenyl, 4,4'-difluoro												
2(1H)-Naphthalenone, octahydro-												
Benzenemethanol, 4-(1-methylet												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	Trip Blank	HGB-7	HGB-7	HGB-7	HGB-7	HGB-7	HGB-7	HGB-7	HGB-8	HGB-8
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:		55-57	62-64	70-72	88-90	103-105	118-120	133-135	55-57	62-64
		Date Sampled:	4/8/97	4/30/97	4/30/97	4/30/97	4/30/97	4/30/97	4/30/97	4/30/97	5/1/97	5/1/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SVOC TICs												
Unknown Alcohol (4.54)												
Unknown Alchol (4.62)												
Unknown Cyclic cpd (5.09)												
Unknown Cyclic cpd (5.23)												
Unknown Cyclic cpd (5.30)												
Unknown Cyclic cpd (5.31)												
Unknown Cyclic cpd (5.40)												
Unknown Cyclic cpd (5.41)												
c3 Subs. Benzene (5.62)												
c3 Subs. Benzene (5.63)												
c3 Subs. Benzene (5.70)												
c3 Subs. Benzene (5.71)												
c3 Subs. Benzene (5.72)												
Unknown (6.10)												
c3 Subs. Benzene (6.33)												
c3 Subs. Benzene (6.34)												
c3 Subs. Benzene (6.42)												
Unknown (6.89)												
Unknown (6.91)												
Unknown Cyclic cpd (6.91)												
Unknonw Cyclic cpd (7.91)												
Unknown Alkane (8.15)												
Unknown Cyclic cpd (8.62)												
Unknown (8.63)												
Unknown Cyclic cpd (8.70)												
Unknown (9.08)												
Unknown (10.44)												
Unknown (10.45)												
Unknown (15.38)												
Unknown (15.39)												
1,1'-Biphenyl, 4,4'-difluoro												
2(1H)-Naphthalenone, octahydro-												
Benzenemethanol, 4-(1-methylet												

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	HGB-8	HGB-8	HGB-8	HGB-8	HGB-8	HGB-8	Field Blank	MW-2	MW-3	MW-4	MW-7
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:	70-72	88-90	103-105	118-120	133-135	150-152		52.3[4]	57.8[4]	58.1[4]	40-60
		Date Sampled:	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/6/97	4/3/97	4/4/97	4/3/97	4/3/97	4/3/97
		Time Sampled:											
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SVOC TICs													
Unknown Alcohol (4.54)													
Unknown Alchol (4.62)													
Unknown Cyclic cpd (5.09)									2 JN	2 JN			
Unknown Cyclic cpd (5.23)									4 JN	4 JN			
Unknown Cyclic cpd (5.30)									4 JN	4 JN			
Unknown Cyclic cpd (5.31)											2 JN		
Unknown Cyclic cpd (5.40)									6 JN	6 JN			
Unknown Cyclic cpd (5.41)											4 JN	3 JN	
c3 Subs. Benzene (5.62)													20 JN
c3 Subs. Benzene (5.63)													
c3 Subs. Benzene (5.70)													18 JN
c3 Subs. Benzene (5.71)													
c3 Subs. Benzene (5.72)													
Unknown (6.10)													
c3 Subs. Benzene (6.33)													
c3 Subs. Benzene (6.34)													37 JN
c3 Subs. Benzene (6.42)													
Unknown (6.89)													
Unknown (6.91)													
Unknown Cyclic cpd (6.91)													
Unknonw Cyclic cpd (7.91)													
Unknown Alkane (8.15)													
Unknown Cyclic cpd (8.62)													
Unknown (8.63)													
Unknown Cyclic cpd (8.70)													
Unknown (9.08)													
Unknown (10.44)													
Unknown (10.45)													
Unknown (15.38)													
Unknown (15.39)													
1,1'-Biphenyl, 4,4'-difluoro													
2(1H)-Naphthalenone, octahydro-													
Benzenemethanol, 4-(1-methylet													

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-13D	MW-14	MW-15	MW-16D
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft) [2]:	40-60	45-60	45-60	45-60	46.5-56.5	48-58	80-90	46-56	48.5-58.5	79.5-89.5
		Date Sampled:	4/3/97	4/3/97	4/3/97	4/3/97	4/3/97	4/3/97	4/3/97	4/4/97	4/4/97	4/3/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SVOC TICs												
Unknown Alcohol (4.54)						2 JN						
Unknown Alchol (4.62)												
Unknown Cyclic cpd (5.09)									2 JN	3 JN	2 JN	2 JN
Unknown Cyclic cpd (5.23)						2 JN			4 JN	4 JN	4 JN	3 JN
Unknown Cyclic cpd (5.30)									4 JN	5 JN	4 JN	
Unknown Cyclic cpd (5.31)						2 JN						4 JN
Unknown Cyclic cpd (5.40)				3 JN		4 JN			7 JN	7 JN	6 JN	6 JN
Unknown Cyclic cpd (5.41)												
c3 Subs. Benzene (5.62)												
c3 Subs. Benzene (5.63)			35 JN		14 JN							
c3 Subs. Benzene (5.70)			36 JN					15 JN				
c3 Subs. Benzene (5.71)					12 JN							
c3 Subs. Benzene (5.72)												
Unknown (6.10)							20 JN					
c3 Subs. Benzene (6.33)								16 JN				
c3 Subs. Benzene (6.34)			54 JN		34 JN							
c3 Subs. Benzene (6.42)												
Unknown (6.89)								18 JN				
Unknown (6.91)							38 JN					
Unknown Cyclic cpd (6.91)				3 JN								
Unknonw Cyclic cpd (7.91)							10 JN					
Unknown Alkane (8.15)								14 JN				
Unknown Cyclic cpd (8.62)				2 JN								
Unknown (8.63)					8 JN							
Unknown Cyclic cpd (8.70)							14 JN					
Unknown (9.08)				2 JN								
Unknown (10.44)												
Unknown (10.45)												
Unknown (15.38)												
Unknown (15.39)												
1,1'-Biphenyl, 4,4'-difluoro				3 JN								
2(1H)-Naphthalenone, octahydro-							18 JN	21 JN				
Benzenemethanol, 4-(1-methylet							14 JN					

Table 3-3

Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

PARAMETER	Groundwater Criteria [1] (ug/l)	Location:	MW-17	MW-17Dup	Trip Blank	Trip Blank	Trip Blank	Field Blank	MW-18D	MW-19	MW-20D	Trip Blank
		Media:	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Depth (ft)[2]:	50-60	50-60					133-143	160-170	175-185	
		Date Sampled:	4/4/97	4/4/97	4/2/97	4/3/97	4/4/97	5/22/97	5/22/97	5/22/97	5/22/97	5/22/97
		Time Sampled:										
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SVOC TICs					NA	NA	NA					NA
Unknown Alcohol (4.54)												
Unknown Alchol (4.62)								2 JN				
Unknown Cyclic cpd (5.09)			3 JN									
Unknown Cyclic cpd (5.23)			4 JN									
Unknown Cyclic cpd (5.30)			5 JN									
Unknown Cyclic cpd (5.31)												
Unknown Cyclic cpd (5.40)			7 JN									
Unknown Cyclic cpd (5.41)												
c3 Subs. Benzene (5.62)												
c3 Subs. Benzene (5.63)												
c3 Subs. Benzene (5.70)												
c3 Subs. Benzene (5.71)												
c3 Subs. Benzene (5.72)									11 JN			
Unknown (6.10)												
c3 Subs. Benzene (6.33)												
c3 Subs. Benzene (6.34)												
c3 Subs. Benzene (6.42)									17 JN			
Unknown (6.89)												
Unknown (6.91)												
Unknown Cyclic cpd (6.91)												
Unknonw Cyclic cpd (7.91)												
Unknown Alkane (8.15)												
Unknown Cyclic cpd (8.62)												
Unknown (8.63)												
Unknown Cyclic cpd (8.70)												
Unknown (9.08)												
Unknown (10.44)								3 JN			3 JN	
Unknown (10.45)										3 JN		
Unknown (15.38)										2 JN		
Unknown (15.39)									32 JN			
1,1'-Biphenyl, 4,4'-difluoro												
2(1H)-Naphthalenone, octahydro-												
Benzenemethanol, 4-(1-methylet												

Notes:

1. Criteria are a compilation of NYSDEC groundwater standards (6NYCRR 703) and guidance values (NYSDEC Division of Water, Technical and Operational Guidance Series (TOGS) 1.1.1 / Ambient Water Quality Standard and Guidance Values, November 15, 1991 and 1.1.2 / Groundwater Effluent Limitations, August 1, 1994)
2. Monitoring well depths represent well screen intervals, unless otherwise noted.
3. Denotes results of NYSDEC split samples.
4. Bottom of well was estimated by sounding. No data was available on actual well screen interval.
5. Data qualifiers are summarized as follows:
   U - denotes analyte was not detected. Value shown is the detection limit.
   J - denotes analyte was detected, but concentration is estimated.
   JN - denotes analyte was tentatively identified with approximated concentrations
   B - denotes that analyte was present in the laboratory blank.
   NA - denotes not analyzed.

Table 3-4

Historical Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

Location:	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7		MW-8	MW-9	MW-10	MW-11	MW-12
Date Sampled:	12/20/94	12/20/94	12/20/94	12/20/94	12/20/94	12/20/94	1/25/95	5/31/95	5/31/95	5/31/95	5/31/95	5/31/95	3/4/96
Analytical Method:	8260/TPH /METALS	8260/TPH /METALS	8260/TPH	8260/TPH	8260/TPH /METALS	8260/TPH	601	601	601	601	601	601	8260
Depth (ft):	N/A	N/A	N/A	N/A	N/A	N/A	40-60	40-60	40-60	45-60	45-60	46.5-56.5	46.5-56.5
PARAMETER Units:		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOCs													
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	52	65	14	12	ND	15
cis-1,2-Dichloroethene	ND	35	28	ND	ND	ND	1,600	ND	ND	ND	ND	ND	2,000
1,1 - Dichloroethane	ND	5	10	ND	ND	ND	ND	25	17	8	9	ND	ND
1,1,1-Trichloroethane	5	23	21	ND	ND	ND	180	61	270	21	24	16	730
Trichloroethene	ND	51	48	ND	ND	ND	5,200	3,200	12,900	290	670	260	4,300
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16
Tetrachloroethene	23	120	110	ND	ND	ND	12,600	8,300	31,700	330	640	1,200	17,000
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	22
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	230
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Subtotal VOCs Detected	28	234	217	0	0	0	19,580	11,638	44,952	663	1,355	1,476	24,343
SVOCs													
Naphthalene	ND	ND	ND	ND	ND	ND							7
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND							76
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND							35
Subtotal SVOCs Detected	0	0	0	0	0	0							118
TPH	ND	0.62	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
METALS													
Mercury	ND	0.03	NA	NA	0.03	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-4

Historical Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

Location:	MW-13	MW-13D	MW-14	MW-15	MW-16D				MW-17	HP-1	HP-2	HP-4	HP-5
Date Sampled:	3/4/96	7/22/96	3/4/96	3/4/96	7/22/96	7/22/96	7/22/96	7/22/96	7/22/96	12/20/94	12/20/94	12/20/94	12/20/94
Analytical Method:	8260	8010	8260	8260	8010	8010	8010	8010	8010	8260/TPH /METALS	8260/TPH /METALS	8260/TPH /METALS	8260/TPH
Depth (ft):	48-58	80-90	46-56	48.5-58.5	79.5-89.5	86	76	61	50-60	N/A	N/A	N/A	N/A
PARAMETER Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOCs													
1,1-Dichloroethene	ND	ND	ND	14	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	4,500	ND	700	13	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1 - Dichloroethane	ND	ND	ND	ND	ND	ND	ND	6	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1,300	ND	28	13	3	4	30	20	9	ND	5	ND	ND
Trichloroethene	7,600	5,800	260	63	10	24	100	45	3	1,100	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	59,000	ND	360	150	1,200	2,600	9,800	300	21	15,000	28	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	41	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	7	ND	ND	ND	ND
Subtotal VOCs Detected	72,400	5,800	1,353	253	1,255	2,628	9,930	371	42	16,100	33	0	5
SVOCs													
Naphthalene	ND		ND	ND						ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND		ND	ND						ND	ND	ND	ND
1,3,5-Trimethylbenzene	ND		ND	ND						ND	ND	ND	ND
Subtotal SVOCs Detected	0		0	0						0	0	0	0
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2	2.2	ND	1.1
METALS													
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02	ND	ND	NA

Table 3-4

Historical Groundwater Analysis Summary

25 Melville Park Road

Melville, Suffolk County, NY

Location: / Date Sampled: / Analytical Method: / Depth (ft): / PARAMETER Units:	HP-6 1/25/95 8260 N/A ug/l	HP-7 7/22/96 8010 58 ug/l	HP-8 7/22/96 8010 58 ug/l	HP-9 7/22/96 8010 58 ug/l
VOCs				
1,1-Dichloroethene	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND
cis-1,2-Dichloroethene	630	ND	ND	ND
1,1 - Dichloroethane	ND	ND	ND	ND
1,1,1-Trichloroethane	80	ND	142,700	1,400
Trichloroethene	1,800	ND	498,300	6,400
Toluene	ND	ND	ND	ND
Tetrachloroethene	7,300	16	30,500,000	122,100
Ethylbenzene	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND
Subtotal VOCs Detected	9,810	16	31,141,000	129,900
SVOCs				
Naphthalene	ND			
1,2,4-Trimethylbenzene	ND			
1,3,5-Trimethylbenzene	ND			
Subtotal SVOCs Detected	0			
TPH	NA	NA	NA	NA
METALS				
Mercury	NA	NA	NA	NA
Zinc	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA

Notes:

ND - Compound not detected above the analytical detection limit

NA - Compound not Analyzed

Table 3-5

Solubility vs. Maximum Observed Groundwater Concentration for Selected Contaminants

25 Melvile Park Road Site

Suffolk County, N.Y.

Contaminant	*Aqueous Solubility (mg/l)* [1]	*Maximum Groundwater Concentration*		
		Location	*Concentration (mg/l)*	*Percent of Solubility Limit*
1,2-Dichloroethene (trans)	600	MW-8 & 12	2.2	0.37%
1,1-Dichloroethane	5,500	MW-10	0.011	< 0.01%
1,1,1-Trichloroethane	1,360	MW-7	0.26	0.02%
Trichloroethene	1,100	MW-12	6.1	0.55%
Tetrachloroethene	150	MW-8	19	12.67%

Notes:

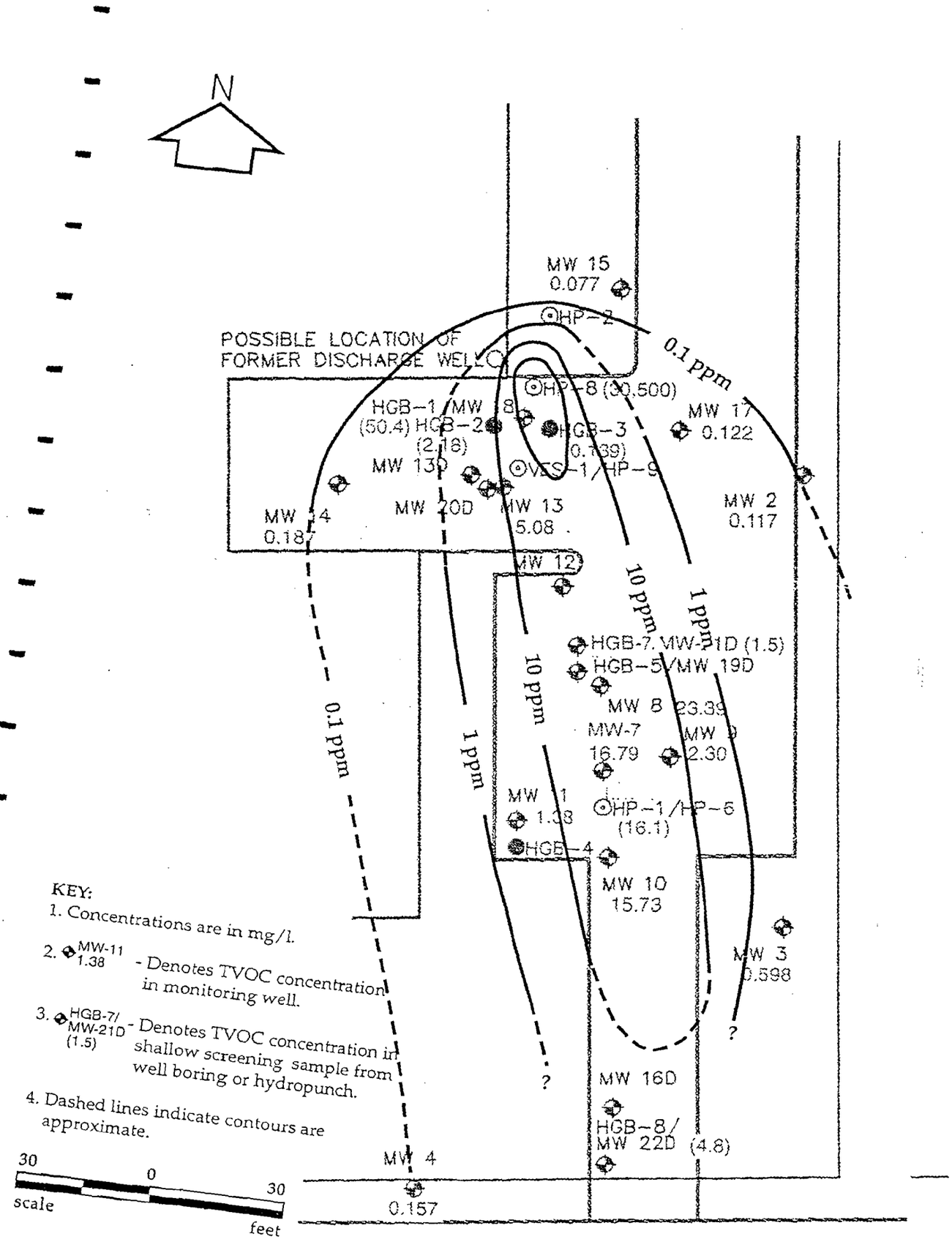
1. Source: R. Cohen, J. Mercer, J. Mathews, DNAPL Site Evaluation, USEPA, 1993
2. Maximum concentrations listed are for the validated April 1997 comprehensive groundwater sampling event. Task does not include unvalidated hydropunch/HGB groundwater screening results.

In addition to these VOCs, lower levels (2-248 ug/l) of aromatics, toluene, ethyl benzene, and xylenes, were detected at several locations above water quality criteria including HGB-1, HGB-5, MW-7, MW-8, MW-10 and MW-12. The presence of these contaminants may be related to the fuel/lubricating oils detected in previous borings from this area. These contaminants were not detected at locations further downgradient.

The concentrations of PCE and total VOCs for the groundwater monitoring well data and relevant historical groundwater screening/hydropunch data are shown graphically in Figures 3-1 through 3-4. Figure 3-1 provides a plan view of total VOC (TVOC) concentrations in shallow groundwater (approximately 45-60 feet below grade). This figure shows a groundwater plume emanating from a DNAPL source near HP-8. The upgradient limit of contamination is defined by HP-2 (33 ug/l TVOC). The plume extends to the southeast, following the general direction of groundwater flow. In the center of the plume, monitoring wells MW-7, 8, 10, and 12 exhibited PCE and TVOC concentrations indicative of DNAPL presence. Groundwater VOC contamination above groundwater criteria appears to be migrating offsite to the south and to the east.

Figures 3-2 through 3-4 show cross-sections of the groundwater contamination with depth. Cross-section A-A' shows the depth of contamination along the longitudinal axis of the observed groundwater plume. The results for wells MW-18 and MW-20 indicate that DNAPL from the source area penetrated down into the saturated zone to between 143 to 175 fbg. The presence of PCE at 4,100 ug/l, or 2.7% of its maximum aqueous solubility, in the well sample from MW-18 is indicative of the continuing presence of DNAPL at this depth and location. From the groundwater screening and monitoring well results, it appears that highly contaminated groundwater, in excess of 10 mg/l TVOCs extends to a depth 70-80 ft. downgradient of the source area. This extends downgradient to MW-10, and may possibly extend past MW-16D since this well is screened deeper. To delineate the extent of contamination, a 100 ug/L TVOC screening limit was selected as a reasonable cutoff level from which to evaluate field screening results. As seen from the results for MW-20D, 19D, and HGB-5, the vertical extent of VOC contamination is approximately 160 to 180 fbg. Further downgradient at the southern site boundary, the vertical extent is approximately 150 fbg, as demonstrated by the 150-152 foot groundwater screening sample at HGB-8. No VOCs were detected in this sample. Above this depth, the VOC contamination profile is unclear. The 133-135 foot screening sample at this location seemingly indicates that contamination as high as 1,550 ug/l TVOC has penetrated to this depth. This concentration may be a result of sampling cross-contamination from shallower depths. Groundwater sampling at multiple depths within a borehole was primarily used as a screening tool and does not completely isolate discrete groundwater horizons or depths. The results of groundwater monitoring well sampling provide more conclusive evidence on the depth profile of contamination. However, given the non-detect in HGB-8 at 150-152 fbg and the depth profile observed further upgradient, this screening sample is believed to accurately reflect the limit of the plume at this location of approximately 150 fbg or less.

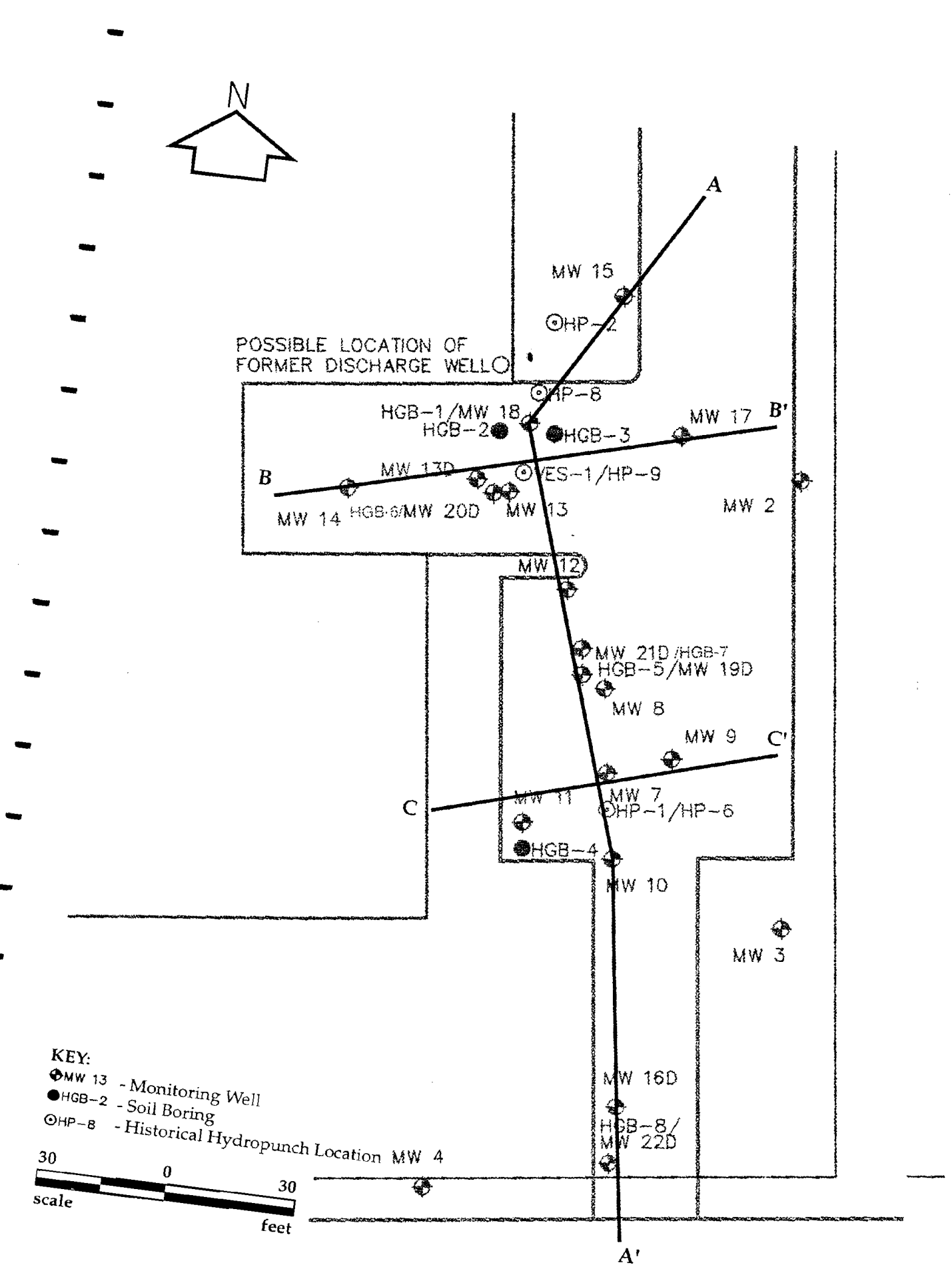
Cross-sections B-B' and C-C' show the lateral extent of groundwater contamination at depth. The results from monitoring wells MW-14 and MW-4 (TVOC concentrations of 157 and 187 ug/l) identify the approximate western boundary of the plume in shallow groundwater. Near the source area, well MW-17 (122 ug/l TVOC) identifies the eastern plume boundary in shallow groundwater.



Total VOC Concentrations (mg/l) In Shallow Groundwater (45-60 fbg)
25 Melville Park Road, Suffolk County, New York

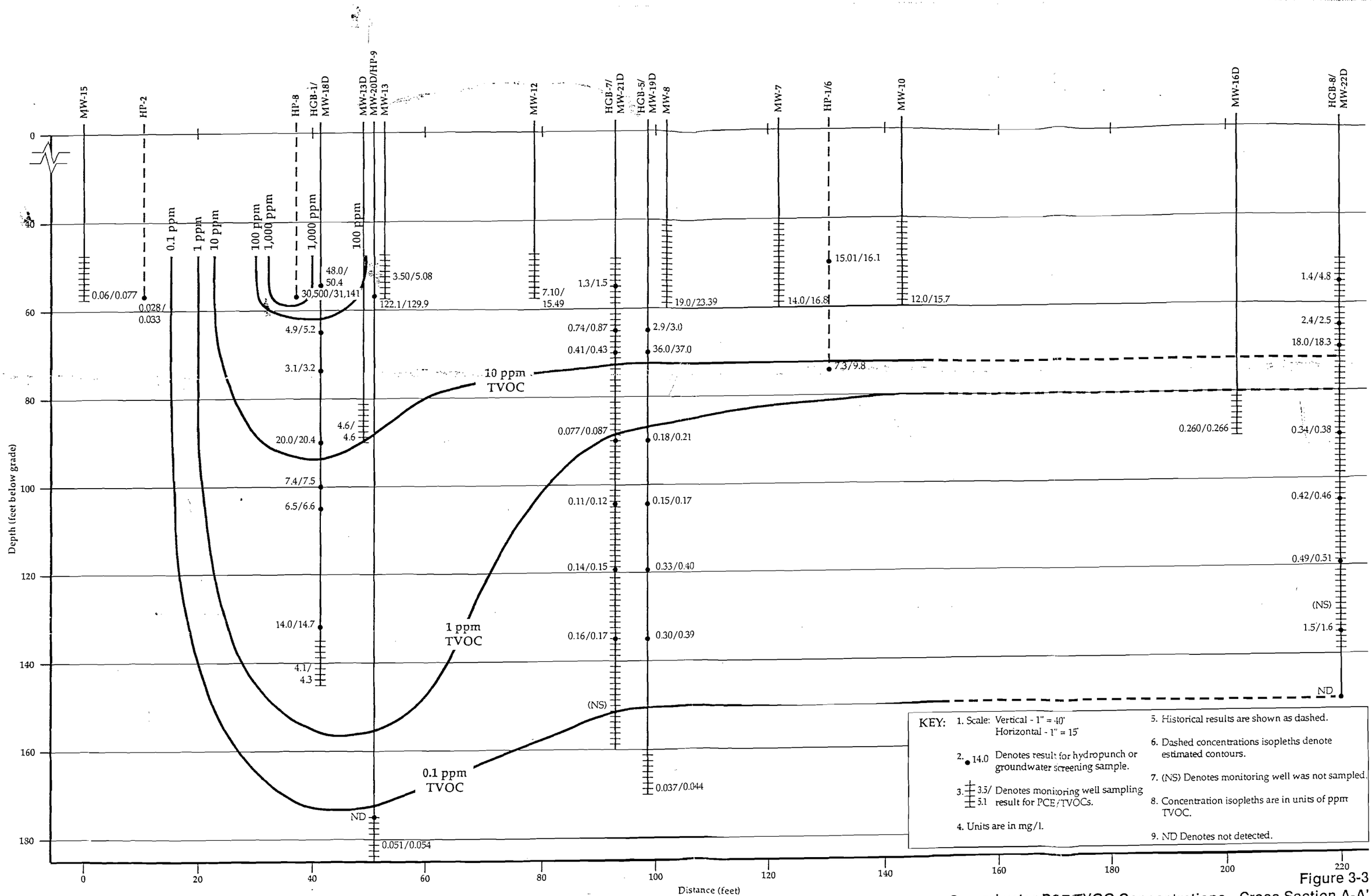
Figure 3-1

CDM Camp Dresser & McKee



CDM Camp Dresser & McKee

Figure 3-2
Cross Section Key Map
25 Melville Park Road, Suffolk County, New York

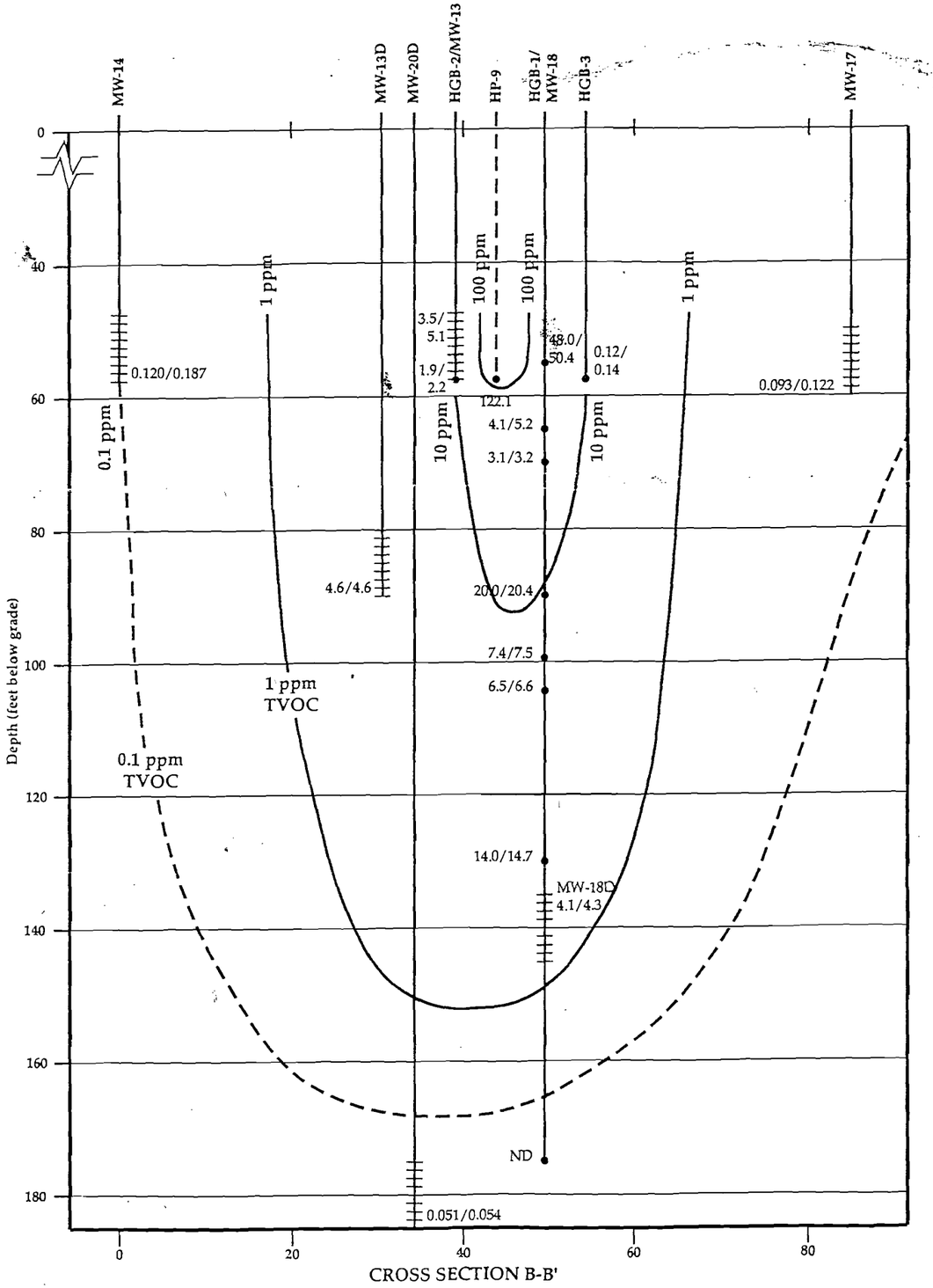


KEY:

1. Scale: Vertical - 1" = 40'
   Horizontal - 1" = 15'
2. ● 14.0 Denotes result for hydropunch or groundwater screening sample.
3. ⊢ 3.5/ ⊢ 3.1 Denotes monitoring well sampling result for PCE/TVOCs.
4. Units are in mg/l.
5. Historical results are shown as dashed.
6. Dashed concentrations isopleths denote estimated contours.
7. (NS) Denotes monitoring well was not sampled.
8. Concentration isopleths are in units of ppm TVOC.
9. ND Denotes not detected.

Figure 3-3
Groundwater PCE/TVOC Concentrations - Cross Section A-A'
25 Melville Park Road, Suffolk County, New York

CDM Camp Dresser & McKee



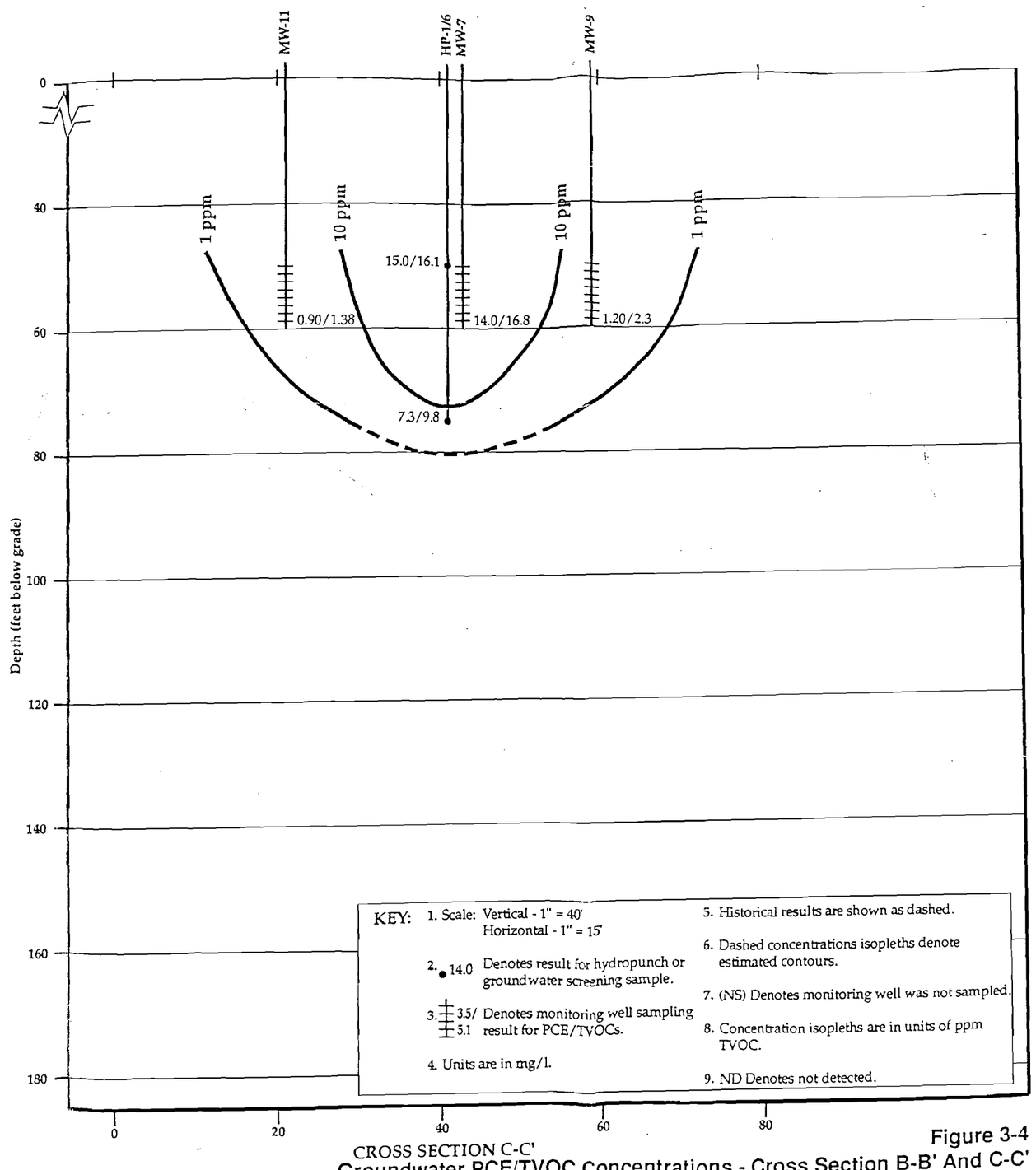


Figure 3-4
Groundwater PCE/TVOC Concentrations - Cross Section B-B' And C-C'
25 Melville Park Road, Suffolk County, New York

However, further downgradient, the shallow groundwater plume extends beyond MW-9 to the east and may extend offsite onto the IW Industries property.

Semi-volatile Organic Compound (SVOCs)

The only SVOCs detected in the groundwater were low levels (1 to 7 ug/l) of naphthalene, 4-chloro-3-methylphenol, 2-methylnaphthalene, n-nitrosodiphenylamine, and di-n-butyl phthalate. The only exceedance of the groundwater criteria was by 4-chloro-3-methylphenol (groundwater criteria of 5 ug/l) at 6 and 7 ug/l in wells MW-10 and MW-12.

Tentatively Identified Compounds (TICs)

A TIC library search was performed on the groundwater samples for VOC and SVOC analysis. These results are included in Table 3-3. TICs are difficult to identify and can be a result of analytical artifacts and degradation products. The only result of note is the recurring presence of C3-substituted benzenes in the center of the VOC contaminant plume from samples HGB-1, and MW-7, 8, 10, 12, and 13 at concentrations of 11 to 410 ug/l. These detections were qualitatively identified in the analysis as a trimethylbenzene. While these TIC results are consistent with the VOC contaminant distribution, it is of interest to note that past discharges of trimethylbenzenes above allowable standards in an outfall from the adjacent I.W. Industries site had been previously documented (AquaTerra, 1993).

Metals

The only metals to exceed groundwater criteria were iron (502-17,500 ug/l), manganese (15.4-2,640 ug/l), selenium (2-10.1 ug/l), and sodium (10,100-63,100 ug/l). Iron and manganese often exceed groundwater criteria in shallow groundwater throughout Long Island and may not be indicative of site contamination. Selenium exceeded the groundwater criteria (10 ug/l) at only one location, MW-13, at 10.1 ug/l. Selenium was not detected in most of the groundwater samples. Upgradient of the source area at MW-15, the sodium concentration of 14,900 ug/l is below the criteria of 20,000 ug/l. Downgradient of this well it appears that site groundwater may have possibly been impacted by sodium. The highest concentrations of sodium occurred in the deeper monitoring well samples such as MW-18D, 19D, and 20D (63,100, 34,600 and 55,200 ug/l, respectively). No relationship with the VOC contamination is apparent.

It is important to note that the concentration of barium detected in the groundwater (65.1-656 ug/l) did not exceed either the NYSDEC groundwater criteria of 1,000 ug/l nor the site-specific action level of 700 ug/l (per NYSDEC letter of 2/13/97). Based upon this observation, there does not appear to be a significant source of barium contamination in the groundwater.

Section 4
Conclusions and Recommendations

Based upon review of the data generated from previous investigations, CDM's review of the public records files housed at the Stony Brook office of the NYSDEC and the Hauppauge office of the SCDHS and CDM interviews with former employees at the site, the following conclusions can be drawn:

- New York Twist Drill (NYTD), a manufacturer of high speed drill bits, conducted operations at 25 Melville Park Road between 1966 (the time the facility was constructed) and 1984.

- Details of the manufacturing process and recollections of former NYTD employees confirm that compounds used in the production process train exhibit the same chemical fingerprint as the contaminants identified in the site soils and groundwater.

- NYSDEC and SCDHS files which CDM was allowed to review, contain documented instances of environmental infractions caused by NYTD operations. The significance of the data and information which CDM was denied access to cannot be determined at this time.

Based upon the investigation conducted by CDM and outlined in the Work Plan for Voluntary Investigation, 25 Melville Park Road, Melville, New York January 1997, the following conclusions can be drawn:

Subsurface Soils

- No tank or other structure was identified in the suspected source area which could act as a continuing source for contamination.

- Contamination of the unsaturated zone soils by VOCs is localized around HP-8 and does not extend laterally beyond HGB-2 and HGB-3. Only low levels of PCE, 2-butanone, and acetone were detected in the soil samples from HGB-1 and HGB-3. None of these samples exceeded NYSDEC soil cleanup criteria.

- When compared to soil boring samples from HGB-2 and HGB-3, the presence of significantly higher soil concentrations of PCE at greater depths in well borings further away from the source area (MW-13 and MW-13D) demonstrates that the PCE contamination spread laterally at the water table.

- Site subsurface soils and groundwater have been impacted by VOCs, primarily PCE, 1,1,1-TCA, and PCE degradation products (e.g., TCE, and 1,2-DCE). Historical and current soil and groundwater data indicate that a PCE DNAPL was introduced to the subsurface in the vicinity of HP-8 and that this area remains as a persistent source area for groundwater contamination. The DNAPL spread laterally at the capillary fringe and water table and penetrated into the saturated zone in the vicinity of HP-8.

Groundwater

- The predominant groundwater flow direction is to the south, southeast.

- The principal VOC contaminants detected in the groundwater during the supplemental investigation were PCE, TCE, 1,1,1-TCA, and 1,2-DCE at concentration ranges of .060-48, .001-61, .002-.43 and .001-22 mg/l, respectively for each contaminant. The high concentrations of PCE and TCE, observed at up to 12.7 and 0.6 percent of their maximum solubility, are indicative of the continuing presence of a DNAPL source.

- The highest concentrations of PCE and TCE were generally found in the water table zone (50 to 60 fbg) adjacent to and downgradient of HP-8.

- Within the source area, at MW-18D, DNAPL appears to have penetrated into the saturated zone to a depth of approximately 140 fbg. PCE was found in this well sample at 4.1 mg/l or 2.7 percent of the maximum solubility limit.

- A plume of groundwater contaminated by VOCs extends from a DNAPL source at HP-8 to the southeast, following the general direction of groundwater flow. The distribution of contaminants is consistent with a release from the former NYTD manufacturing operations.

- To assess the extent of onsite contamination, a site-specific screening action level of 100 ug/l TVOC was selected in consultation with NYSDEC. Based upon this action level, the approximate lateral extent of the plume is bounded to the west by wells MW-14 and MW-4. Near the source area, the plume is bounded to the east by MW-17. Further downgradient, the data suggests that contamination in excess of 100 ug/l TVOC extends beyond the property line onto the IW Industries property. The downgradient extent of the plume extends beyond the southern property line, as demonstrated by the results from MW-16D.

  At this time the extent of offsite migration is unknown and is not within the scope of this report. But as demonstrated by the sampling results of MW-16D and HGB-8, the plume does appear to extend beyond the southern property line. As established by NYSDEC in their September 25, 1996 letter, "The goal of the voluntary cleanup will be to remediate the on-site soil and groundwater contamination. Groundwater contamination extends off-site. However, study and remediation of this off-site contamination will not be required under the voluntary cleanup agreement. The Department will attempt to have previous owners/operators fund the off-site investigation and remediation."

- The groundwater VOC plume extends from the water table to a depth of approximately 160-180 fbg in the source area and immediately downgradient. Groundwater screening results collected at the southern site boundary indicate that the vertical extent of the plume at this location does not extend beyond 150 fbg.

- In addition to PCE and PCE degradation products, lower levels (2-248 ug/l) of aromatics (toluene, ethyl benzene, and xylenes) were detected at several locations onsite within the PCE plume above water quality criteria.

- Only trace levels of four SVOCs were detected in the groundwater. This included the presence of 4-chloro-3-methylphenol (6 and 7 ug/l in wells MW-10 and 12) which marginally exceeded the groundwater criteria of 5 ug/l.

- A recurring tentatively identified compound (TIC) identified as a trimethylbenzene was present at 11-410 ug/l in HGB-1 and MW-7, 8, 10, 12, and 13. Although trimethylbenzene was a known effluent constituent at the adjacent IW Industries property, available data is inconclusive as to whether this TIC originated from offsite or whether it was used in the former on-site manufacturing process.

- *Metals Exceedance* - The only metals to be above the NYSDEC groundwater quality criteria were manganese, iron, selenium and sodium (see table 3-3). Iron and manganese are naturally occurring ions in groundwater and do not represent a cause for concern. Sodium values ranged from approximately 10 ppm to 33 ppm in on-site monitoring wells. The groundwater quality standard for sodium is 20 ppm. In ten of the eighteen wells sampled, sodium exceeded the action level. The wells are geographically distributed in such a manner as to indicate that they may have been impacted by historical site activities. Sodium does not appear to be problematic in wells along the site's periphery. A single groundwater quality exceedance of selenium was identified in the source area in well MW-13. The groundwater criteria is 10 ug/L. The well result was 10.1 ug/L. As such, selenium is not considered problematic.

- *Barium, Cyanide, and Mercury* - Groundwater quality analyses performed on on-site wells indicated that barium concentrations were below NYSDEC Division of Water, Technical and Operational Guidance Series (TOGS) action levels and the site-specific action level of 0.7 ppm (per NYSDEC letter of 2/13/97). Cyanide and mercury concentrations were similarly below state action limits. With regard to barium, NYSDEC had requested that additional soil borings be advanced to determine if the former barium tank was potentially a continuing source of contamination. A GPR survey (see section 2.2) identified a subsurface anomaly which is believed to the location of this abandoned tank. Described as ten foot long by ten foot wide tank its geophysical signature suggest it to be made of concrete. Prior to the installation of additional borings it was agreed by NYSDEC that if barium concentrations in groundwater did not exceed the site-specific action level, then no additional work would be necessary. It is noted that no barium exceedances were identified. Furthermore, the site-specific action limit is 0.3 ppm less than the groundwater quality standard of 1 ppm.

- The groundwater sampling results were validated and the NYSDEC confirmed the accuracy of the results for three duplicate samples. The duplicate samples were sent to the NYSDEC for confirmation by an independent laboratory. All split sample results agreed closely with each other, with differences of only 2% and 8% for those samples where VOCs were detected. The NYSDEC confirmed the accuracy of the results in a May 5, 1997 letter to CDM.

Recommendations

- The nature and degree of contamination at this site makes it a candidate for innovative, in-situ remedial actions. The specific DNAPL species identified through this and previous site investigations can be oxidized into non-hazardous compounds using Fenton's reagent. The

costly and ineffective cleanup technologies traditionally used at DNAPL contaminated sites. In order to more fully test this technology, CDM recommends a pilot study. Although in-situ oxidation will have no impact on the concentration of metals in the groundwater or soil, the metals exceedances of the groundwater quality do not appear to be problematic and no further investigation or remedial action is recommended. Additionally, CDM recommends that the oxidants used in the pilot study be introduced at the contaminant source area in an attempt to evaluate their effectiveness to mitigate the contaminated unsaturated zone, the water table and the contaminated saturated zone where the highest concentrations of contaminants have been identified.

- CDM recommends that a three dimensional groundwater flow and contaminant transport model of the site be developed. The model should be used to help design and optimize the pilot study, to estimate the duration of cleanup, and to estimate the degree to which intrinsic remediation can be effective for residual dissolved contamination.

  The contaminant transport model will also serve as a useful tool for the development and performance of a Risk Assessment. A Risk Assessment is recommended to comply with National Contingency Plan (NCP) requirements and further assess the potential human health and environmental impacts associated with present and future site activities.

  The model can also be used, as needed, to develop and evaluate alternate remedial approaches should the pilot indicate only limited success using in-situ oxidation at the site.

- CDM recommends that a Citizens Participation Plan be developed to inform the public at the appropriate time of the findings of the remedial investigation and to develop plans for remedial action. The CPP is a requirement for site clean-up actions under the NYSDEC Voluntary Cleanup Program.